IEI Technology Corp.

MODEL:

AFL-317AB(W)-945

Intel® Pentium® Dual-Core POS System with 0.3 M Pixel Webcam, Touch Screen, 1 GB DDR2, VGA, DVI, Four Serial Ports and AT/ATX Power Support

User Manual

RoHS Lead Free

Rev. 1.01 16 February, 2009

Revision

Date	Version	Changes
16 February, 2009	1.01	- Added a note for 3.5” HDD installation - Modified optical drive installation procedures
24 November 2008	1.00	Initial release

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Manual Conventions

WARNING!

Warnings appear where overlooked details may cause damage to the equipment or result in personal injury. Warnings should be taken seriously. Warnings are easy to recognize. The word “warning” is written as “**WARNING**,” both capitalized and bold and is followed by text. The text is the warning message. A warning message is shown below:

WARNING:

This is an example of a warning message. Failure to adhere to warning messages may result in permanent damage to the AFOLUX AFL-317A series or personal injury to the user. Please take warning messages seriously.

CAUTION!

Cautionary messages should also be heeded to help reduce the chance of losing data or damaging the AFOLUX AFL-317A series. Cautions are easy to recognize. The word “caution” is written as “**CAUTION**,” both capitalized and bold and is followed. The italicized text is the cautionary message. A caution message is shown below:

CAUTION:

This is an example of a caution message. Failure to adhere to cautions messages may result in permanent damage to the AFOLUX AFL-317A series. Please take caution messages seriously.

NOTE:

These messages inform the reader of essential but non-critical information. These messages should be read carefully as any directions or instructions contained therein can help avoid making mistakes. Notes are easy to recognize. The word “note” is written as “**NOTE**,” both capitalized and bold and is followed by text. The text is the cautionary message. A note message is shown below:

NOTE:

This is an example of a note message. Notes should always be read. Notes contain critical information about the AFOLUX AFL-317A series. Please take note messages seriously.

Packing List

NOTE:

If any of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the IEI reseller or vendor you purchased the AFOLUX AFL-317A series from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@iei.com.tw.

The items listed below should all be included in the AFOLUX AFL-317A series package.

- 1 x AFOLUX AFL-317A
- 1 x Power adapter
- 1 x Power cord
- 1 x Screw kit
- 2 x Camera brackets for camera angle changing
- 1 x 2.5” HDD support bracket
- 1 x User manual CD and driver CD
- 1 x Touch pen

Images of the above items are shown in **Chapter 3** on **page 28**.

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Chapter

1

Introduction

1.1 AFOLUX AFL-317AB/W Series Flat Panel PC Overview

Figure 1-1: AFOLUX AFL-317AB-945 Flat Panel PC

The AFL-317AB-945 and AFL-317AW-945 (AFL-317A) are Intel® Pentium® Dual-Core powered flat panel PCs with a rich variety of functions and peripherals. Both AFL-317A models are designed for easy and simplified integration in to kiosk and point-of-sales (POS) applications.

An Intel® 945G graphics memory controller hub (GMCH) coupled with an Intel® ICH7 input/output controller hub ensures optimal memory, graphics, and peripheral I/O support. The system comes with 1.0 GB of preinstalled DDR2 SDRAM and supports a maximum of 4.0 GB of DDR2 SDRAM ensuring smooth data throughputs with reduced bottlenecks and fast system access.

Four serial ports and eight external USB 2.0 ports ensure simplified connectivity to a variety of external peripheral devices. A VGA and DVI-I connector enable connectivity to other monitors. Wi-Fi capabilities and an RJ-45 Ethernet connector ensure smooth connection of the system to an external LAN.

A white or black AFL-317A is available to ensure the AFL-317A system blends into its operational environment.

1.1.1 Features and Model Variations

There are two models in the AFL-317A series. Both models feature the following:

- Intel® Pentium® Dual-Core processor
- 17" SXGA panel PC
- Intel® 945G chipset
- 1GB DDR2 SDRAM preinstalled
- 802.11 a/b/g wireless module
- Touch screen
- Bluetooth
- 0.3 mega-pixel Webcam
- RoHS compliance

There is both a black AFL-317A model and a white AFL-317A model. The model numbers are listed below.

- AFL-317A**B**-945-E2160/WT-R/1GB/D/160G Black
- AFL-317A**W**-945-E2160/WT-R/1GB/D/160G White

1.1.2 Applications

The AFL-317A panel PCs are elegant yet sophisticated systems that are easily implemented in commercial environments, industrial environments and corporate environments.

1.1.3 Standard Features

Some of the standard features of the AFOLUX AFL-317A series flat panel PC include:

- Built-in 0.3 mega-pixel Webcam with two digital microphones
- Four standard RS-232 connectors with user configured pin 9 signals being set as RI, +5.0 V or +12.0 V
- Eight USB 2.0 ports
- Watchdog timer that triggers a system reset if the system hangs for some reason
- iSMM system health supervision API to track the system status
- Built-in stereo speakers

- Bluetooth functionality
- Touch screen option
- Wireless LAN connectivity
- IP 64 compliant front panel
- AT or ATX power mode
- RoHS compliant

1.2 External Overview

1.2.1 General Description

The stylish AFL-317A panel PC comprises of a screen, rear panel, top panel, bottom panel and two side panels (left and right). An ABS/PC plastic front frame surrounds the front screen. The rear panel provides screw holes for a wall-mounting bracket compliant with VESA FDMI standard. An I/O interface panel on the rear panel of the AFL-317A provides access to external interface connectors that include LAN, USB 2.0, serial port, reset button, power connector and power switch.

1.2.2 Front Panel

The front side of the AFOLUX AFL-317A series is a flat panel TFT LCD screen surrounded by an ABS/PC plastic frame. The top of the front panel has a 0.3 mega-pixel Webcam with digital microphone and the bottom of the front panel features two speakers for stereo sound.

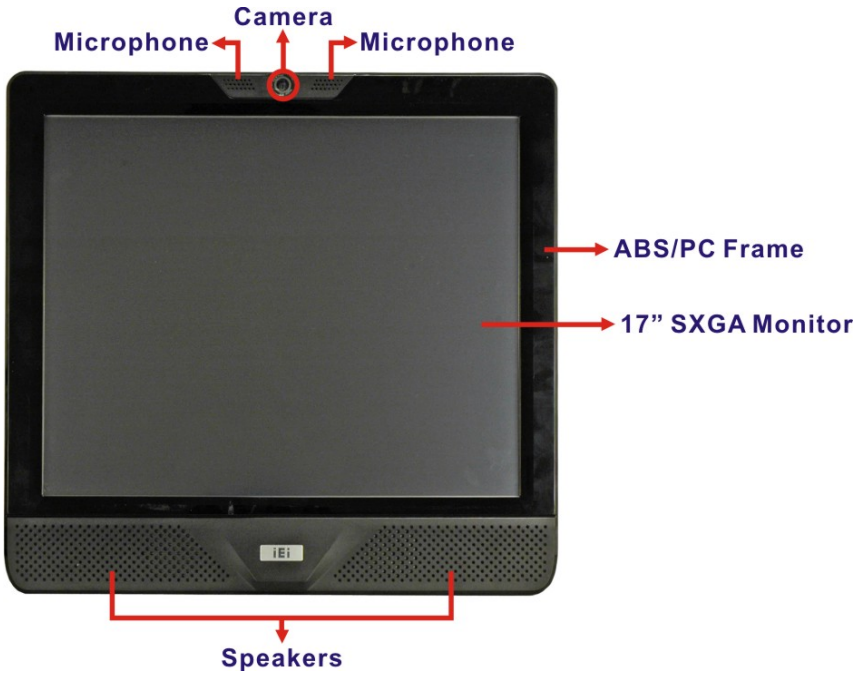


Figure 1-2: AFL-317A Front View

1.2.3 Rear Panel

The rear panel provides access to retention screw holes that support the wall mounting and to the I/O interface panel that enable connection to a wide range of external peripheral devices. Refer to **Figure 1-3**.

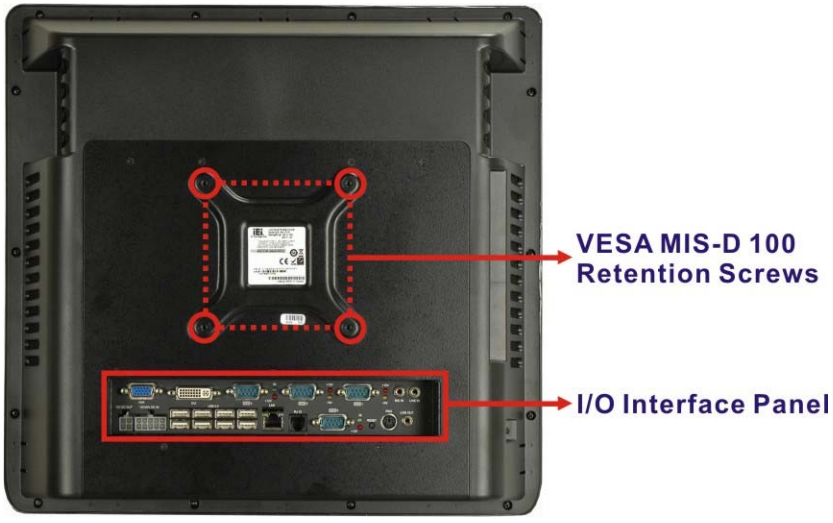


Figure 1-3: AFL-317A Rear View

1.2.4 I/O Interface Panel

The I/O interface panel located on the rear side of the AFL-317A (see **Figure 1-3** above) has the following I/O interface connectors:

- 1 x 24 V DC Out connector
- 1 x 12 V or 24 V DC In connector
- 8 x USB 2.0 connectors
- 1 x LAN connector
- 1 x RJ-12 connector
- 3 x RS-232 connectors
- 1 x RS-232/422/485 connector
- 1 x PS/2 connector
- 1 x Line out audio jack
- 1 x Line in audio jack
- 1 x Mic in audio jack
- 1 x DVI out connector
- 1 x VGA connector
- 1 x Reset button

The external I/O interface connector panel is shown in **Figure 1-4**.

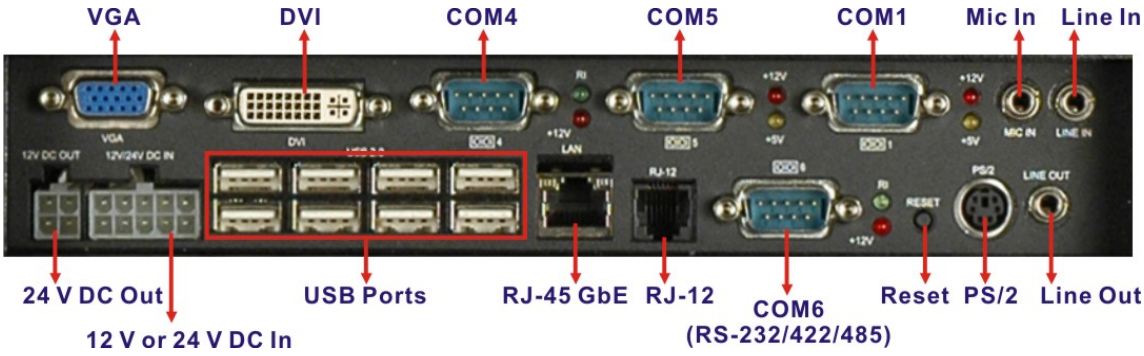


Figure 1-4: AFL-317A I/O Interface Connector Panel

1.2.5 Top Panel and Bottom Panel

The top panel and side panels of AFOLUX AFL-317A series provides access to slots that support panel mount and rack mount (**Figure 1-5**).

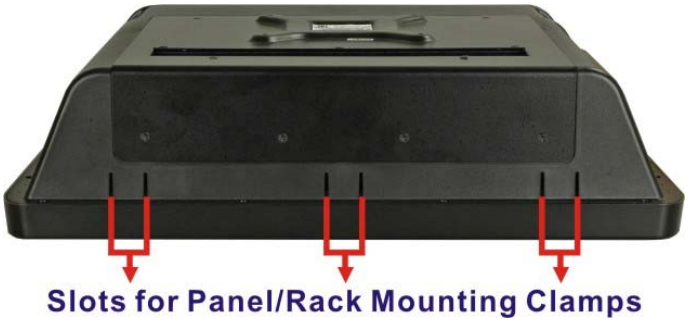


Figure 1-5: AFL-317A Bottom View

1.2.6 Side Panels

The side panels of the AFL-317A panel PC have ventilation vents that cool the interior of the system. The left panel also provides access to the optical drive and has a power switch near the bottom. See **Figure 1-6**.

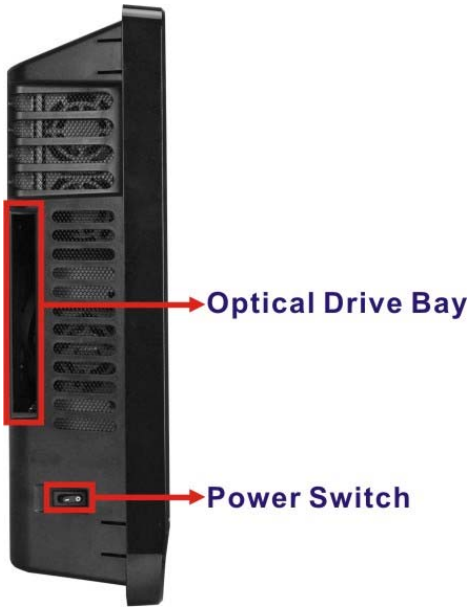


Figure 1-6: AFL-317A Side View

1.3 Internal Overview

The AFOLUX AFL-317A has the following components installed internally:

- 1 x Motherboard
- 1 x 1.0 GB DDR2 SDRAM DIMM
- 1 x Wireless module
- 1 x Bluetooth module
- 1 x CF Type II card slot

1.4 System Specifications

The technical specifications for the AFOLUX AFL-317A series systems are listed in **Table 1-1.**

Specification	Parameters
LCD Size	17”
Contrast Ratio	800:1
LCD Color	16.2M
Pixel Pitch (mm)	0.264 (H) x 0.264 (V)
Viewing Angle (H-V)	160 (H) / 160 (V)
Backlight MTBF	50,000 hours
SBC Model	AFLMB-9454
CPU	1.8 GHz Intel® Pentium® Dual-Core processor (E2160)
Graphics Memory Controller Hub	Intel® 945G
Memory	One 1.0 GB DDR2 SDRAM DIMM pre-installed
Brightness (cd/m^2)	300
SSD	CF Type II
Watchdog Timer	Software Programmable supports 1 sec. ~ 255 sec. system

	reset
Audio	AMP 1.5 W + AMP 1.5 W (built-in stereo speakers)
Camera	300K pixel camera with digital microphone
Expansion	1 x PCIe mini card
	1 x Mini PCI interface (wireless LAN 802.11 a/b/g module)
	1 x Bluetooth module (USB interface, Bluetooth v 2.0)
HDD Drive Bay	1 x 3.5” SATA HDD bay or 1 x 2.5” SATA HDD bay
Optical Drive Bay	1 x Slim type optical drive bay
Construction Material	ABS + PC plastic front frame
Mounting	Panel Wall Stand Arm (VESA 100 mm x 100 mm)
Front Panel Color	Black or White
Dimensions (W x H x D) (mm)	400 x 380 x 107
Operation Temperature	0ºC ~ 45ºC
Storage Temperature	-20ºC ~ 80ºC
Net weight	13.4 kg
IP level (front panel)	IP 64
EMC	CE, FCC and CCC
Safety	UL and CB
Touch Screen	Resistive Type 5-wire (touch controller IC is on board)
Power Adapter	252 W

(ACE-D825AH)	Input: 90 VAC ~ 264 VAC @ 50 Hz / 60 Hz
	Output: 12 VDC at 15 A, 24 VDC at 3 A
Power Consumption	127 W
I/O Ports and Switches	1 x 12 V/ 24 V DC input jack
	1 x PS/2 connector
	3 x RS-232 COM port connectors
	1 x RS-232/422/485 COM port connector
	1 x RJ-12. 12 V/ 24 V cash draw port connector
	1 x RJ-45 for GbE LAN
	8 x USB 2.0 ports
	1 x Power switch
	1 x Reset button
	1 x DVI port
	1 x VGA port
	1 x Line-in, 1 x Line-out, 1 x Mic-in
	1 x 24 V DC output jack

Table 1-1: AFL-317A Series System Specifications

Chapter

2

Detailed Specifications

2.1 Dimensions

The following sections provide detailed schematics and information on the dimensions of the AFL-317A.

2.1.1 Front Panel Dimensions

Front panel dimensions are shown in **Figure 2-1** and listed below.

- **Width**: 400.0 mm
- **Height**: 380.0 mm

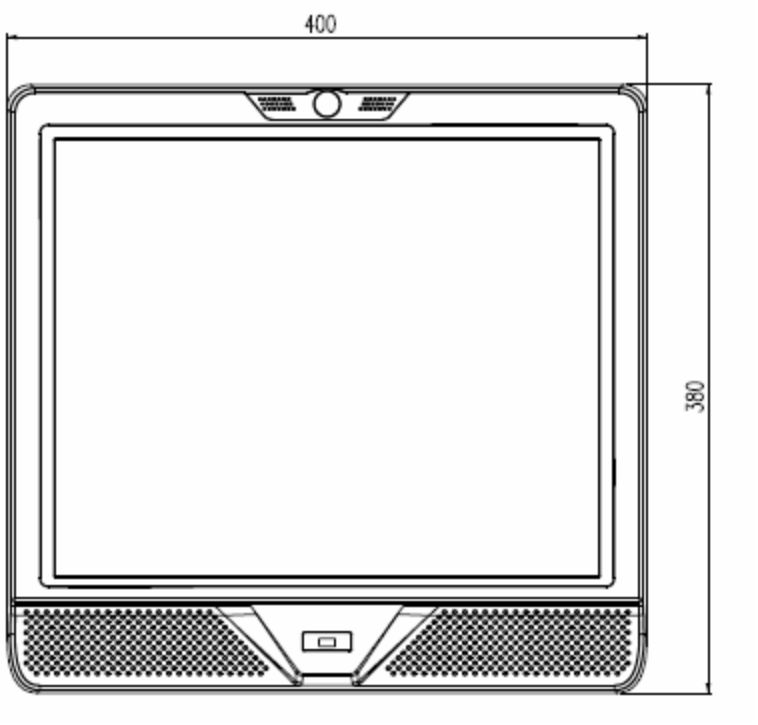


Figure 2-1: AFL-317A Front Panel Dimensions (mm)

2.1.2 Side Dimensions

Side panel dimensions are shown in Figure 2-2 and listed below.

- **AFL-317A Depth**: 107.3 mm

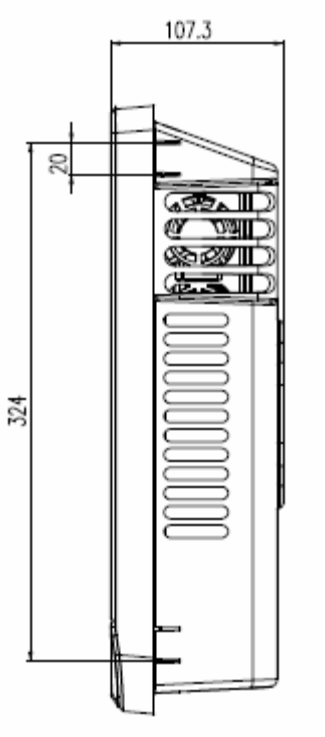


Figure 2-2: AFL-317A Side Panel Dimensions (mm

2.1.3 Top and Bottom Panel Dimensions

Top and bottom panel dimensions are shown in Figure 2-3 and listed below.

- **AFL-317A Chassis Width**: 374.4 mm

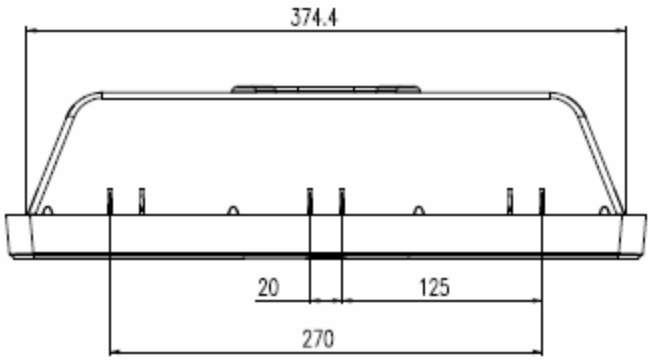


Figure 2-3: AFL-317A Top and Bottom Panel Dimensions (mm)

2.2 Intel® Desk-Top Processor Support

An E2160 Intel® LGA775 Pentium® Dual-Core desktop processor is installed in the system. The processor has a CPU speed of 1.8 GHz and an 800 MHz front side bus (FSB). The processor also comes with a 1.0 MB L2 cache and a 1.8 GHz L2 cache speed. E2160 Intel® LGA775 Pentium® Dual-Core desktop processor supports the following Intel® features:

- Dual Core
- Enhanced Intel Speedstep® Technology
- Intel® EM64T 1
- Enhanced Halt State (C1E)
- Execute Disable Bit 2
- Intel® Thermal Monitor 2

2.3 Motherboard Components

The following sections describe some of the features on the motherboard.

2.3.1 Memory Support

2.3.1.1 Installed Memory

One 240-pin 1.0 GB DDR2 SDRAM DIMM is installed in the AFL-317A and controlled by the Intel® 945G GMCH installed on the internal motherboard.

2.3.1.2 Additional Memory

The Intel® 945G is capable of supporting two 240-pin 2.0 GB (max.) 667 MHz, 533 MHz or 400 MHz DDR2 SDRAM DIMM (system max. 4.0 GB). If additional memory is required, please contact an IEI sales representative and discuss the necessary system requirement.

2.3.2 Storage Capacity

The AFL-317A can support a 2.5” or 3.5” SATA hard disk drive. The system can also support an easily installed CompactFlash® Type II (CF Type II) memory disk.

2.4 External Peripheral Interface Connectors

The following section describes the external peripheral interface connectors on the rear panel of the subsystem.

2.4.1 Serial Port Connectors

The AFL-317A has four serial ports. Three of these ports (COM1, COM5 and COM4) are RS-232 only ports. The COM6 serial port can be configured as a RS-232, RS-422 or an RS-485 serial port. Pin 9 on all ports can be set as the normal ring (RI) signal or can be designated as a 5 V or 12 V power supply. Pin 9 settings are shown with red, yellow and green LED indicators next to the DB-9 CON port connectors on the rear panel. Enabling COM devices to be powered through the COM port eliminates unnecessary and messy cabling.

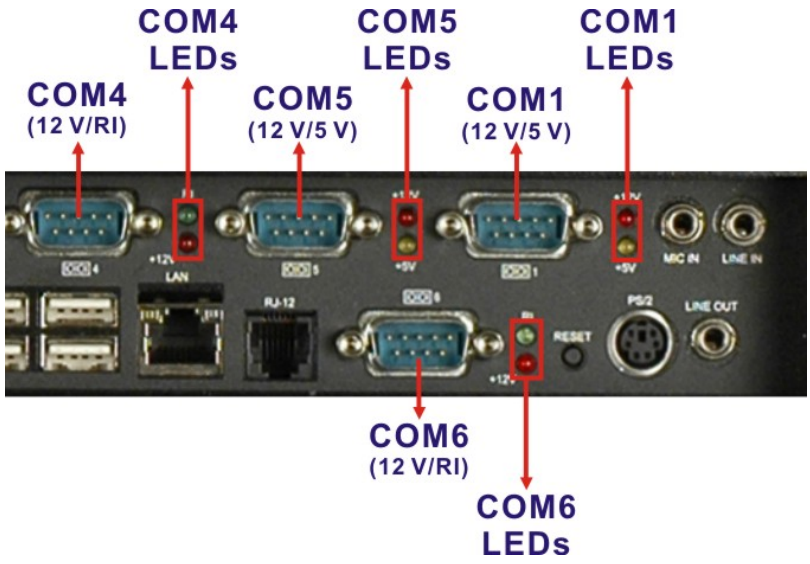


Figure 2-4: COM Ports and LED Indicators

2.4.2 LAN Connectivity

The AFL-317A has one GbE connector on the rear panel.

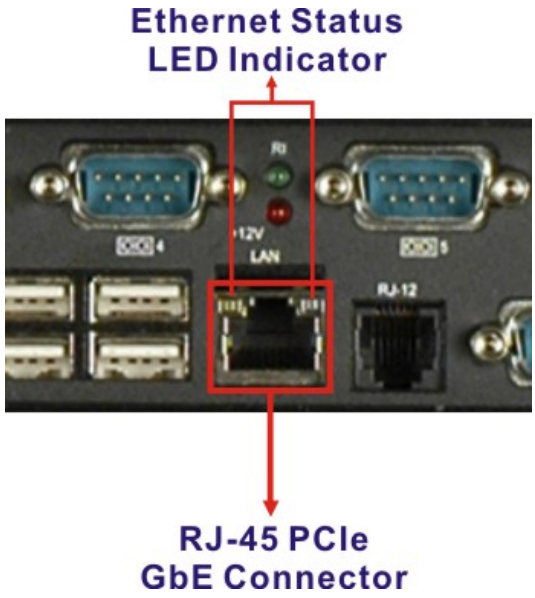


Figure 2-5: RJ-45 Ethernet Connector

The PCIe lane from the Intel® ICH7 chipset of the AFL-317A is interfaced to the Realtek RTL8111CP PCIe gigabit Ethernet (GbE) controller. The RTL8111CP controller is then connected directly to the RJ-45 connectors on the rear panel and provides external GbE connectivity. Some of the RTL8111CP controller features are listed below:

- Integrated 10/100/1000 transceiver
- Supports PCI Express™ 1.1
- Fully compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab
- Supports IEEE 802.1P Layer 2 Priority Encoding
- Supports IEEE 802.1Q VLAN tagging
- Serial EEPROM
- Transmit/Receive on-chip buffer support
- 64-pin QFN package (Green package)

2.4.3 External USB Connectors

There are eight USB 2.0 connectors on the rear panel of the AFL-317A. All eight USB 2.0 connectors are interfaced directly to the USB controllers on the ICH7 Southbridge. These USB connectors are fully compliant with USB specification Revision 2.0 and USB specification Revision 1.1 and can be interfaced to both USB 1.1 and USB 2.0 compliant devices.

Figure 2-6: External USB Ports

2.4.4 Keyboard and Mouse Connectivity

A PS/2 connector on the rear panel interfaces to an ITE IT8712F super I/O chipset on the motherboard that connects through the LPC bus to the Southbridge chipset.

Figure 2-7: Keyboard and Mouse Connector

2.5 AFOLUX AFL-317A Front Side

2.5.1 Monitor

A 17” SXGA LCD screen is installed on the front of the AFOLUX AFL-317A. The installed monitor has a pixel resolution of 1280 x 1024 pixels. The screen is shown in Figure 2-8 below.

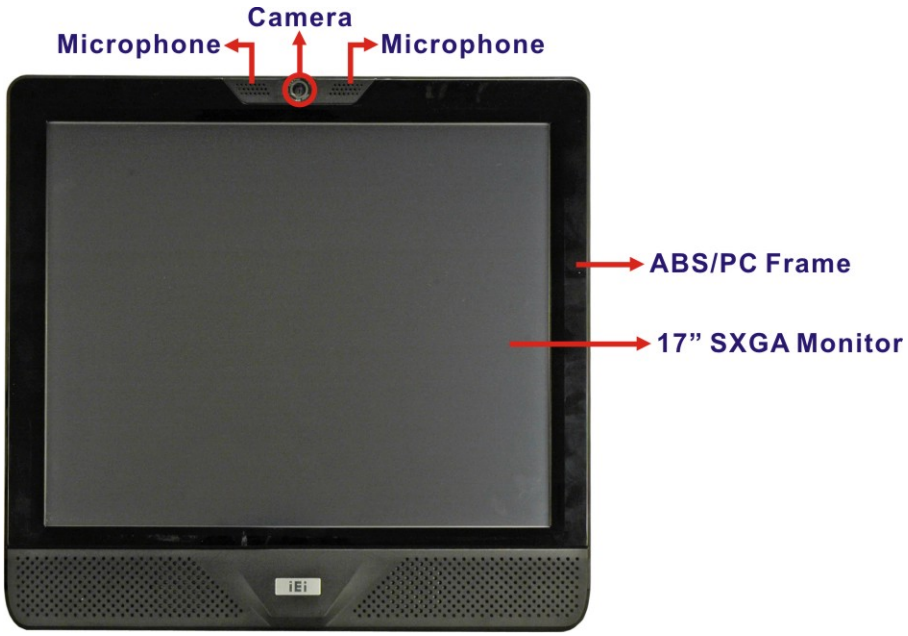


Figure 2-8: SXGA Screen

2.5.2 Touch-Screen Module

A controller for the 5-wire resistive touch screen is installed on the motherboard. The sensitive touch screen is accurate, reliable and durable.

2.5.3 Digital Camera and Microphone

The AFL-317A is built in with a 0.3 M pixel digital camera and a set of microphone on the front panel (**Figure 2-8**). The camera angle can be changed by replacing the camera bracket (refer to **Section 4.11**).

2.6 Graphics

2.6.1 Intel® 945G Integrated Graphics Media Accelerator 950

The Intel® 945G has the Intel® GMA 950 integrated into the chipset and interfaced to the VGA connector. The Intel® GMA 950 is a 400 MHz 256-bit graphics core and supports up to 10.6 GBps memory bandwidth with 667 MHz DDR2 system memory.

Figure 2-9: VGA Connector

2.6.2 DVI Graphics

The DVI connector is interfaced to the Intel® 945G graphics controller through a Chrontel CH7308B SDVO/LVDS transmitter. The Chrontel CH7308B single/dual LVDS Transmitter transmits up to 165 mega pixels per second (MP/s). The CH7308 is a display controller device, which accepts digital graphics input signals, upscales, encodes, and transmits data through an LVDS transmitter to a LCD panel. The DVI connector and Chrontel chipset are shown in Figure 2-10 below.

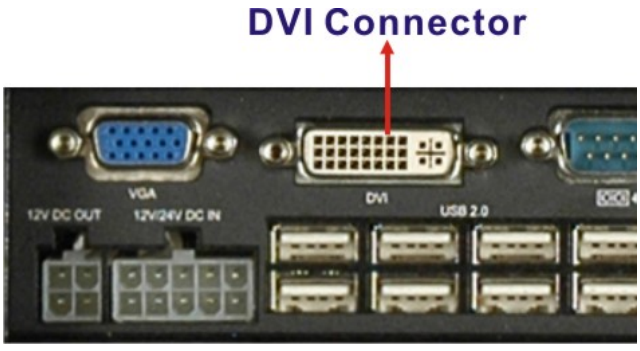


Figure 2-10: DVI Connector

2.6.3 Dual-Display

The system supports dual display capabilities. An additional monitor can be connected to the AFL-317A through either the VGA connector or the DVI connector described above.

2.7 Audio

2.7.1 High Definition Audio Codec Controller

The integrated High Definition Audio compliant audio controller on the Intel® ICH7 Southbridge is integrated to a RealTek ALC888 audio codec. The RealTek ALC888 is connected to the external audio jacks, which are then connected to compliant audio devices. The RealTek ALC888 is a 7.1+2 channel High Definition Audio codec with ten DACs channels and two stereo ADCs. The audio connectors are shown in **Figure 2-11**.

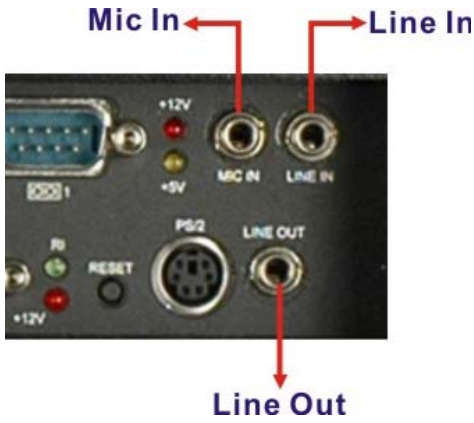


Figure 2-11: Audio Jacks

2.7.2 Stereo Speakers

Two stereo speakers on the front side of the AFL-317A are interfaced to the system through a Philips TDA1517p integrated class-B dual output amplifier.

Figure 2-12: Stereo Speakers

2.8 System Power

2.8.1 Power Mode

The system can be run in the AT power mode or the ATX power mode. Both these power modes are described below.

2.8.1.1 ATX Power Mode (Default)

With the ATX mode selected, the AFOLUX AFL-317A panel PC goes in a standby mode when it is turned off. The panel PC can be easily turned on via network or a power switch in standby mode. Remote power control is perfect for advertising applications since the broadcasting time for each panel PC can be set individually and controlled remotely. Other possible application includes

- Security surveillance
- Point-of-Sale (POS)
- Advertising terminal

2.8.1.2 AT Power Mode

With the AT mode selected, the power is controlled by a central power unit rather than a power switch. The AFOLUX AFL-317A panel PC turns on automatically when the power is connected. The AT mode benefits a production line to control multiple panel PCs from a central management center and other applications including:

- ATM
- Self-service kiosk
- Plant environment monitoring system
- Factory automation platform
- Manufacturing shop flow
-

2.8.2 Power Supply

The system is shipped with a 100 V to 240 V IEI AC power supply unit (PSU) that has a maximum power output of 252 W. The PSU has additional 12 V and 24 V DC output connectors. The power supply is also equipped with two cooling fans. The power supply is shown in below.

Figure 2-13: Power Supply Unit

2.8.3 Power Connectors

There are two power connectors on the rear panel interface panel. A 12 V or 24 V input connector and a 24 V output connector. These connectors are shown in Figure 2-14 below.

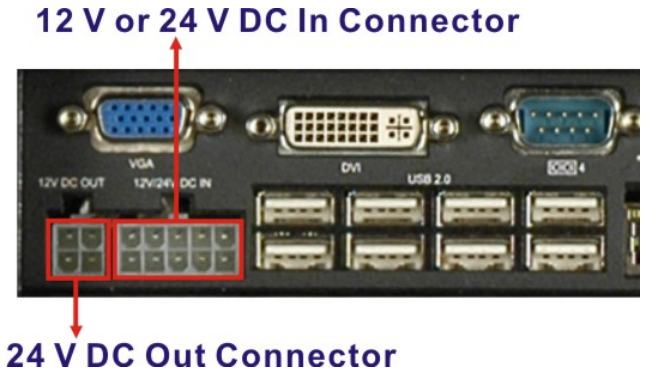


Figure 2-14: Power Connectors

2.8.3.1 Power Input Connector

A standard 6-pin connector on the connector interface panel is connected to the power supply and can input 12 V or 24 V of direct current into the system.

2.8.3.2 Power Output Connector

A standard 4-pin connector on the connector interface panel is provides 24 V of direct current to an external peripheral device such as a thermal printer.

2.8.4 RJ-12 Connector for Cash Draw Power

A RJ-12 connector on the rear panel interface can provide 24 V or 12 V of power to a cash drawer if the AFOLUX AFL-317A is used in as a point of sale (POS) system. The cash draw control can be controlled through the digital I/O and monitored through the Intelligent System Management Module (iSMM).

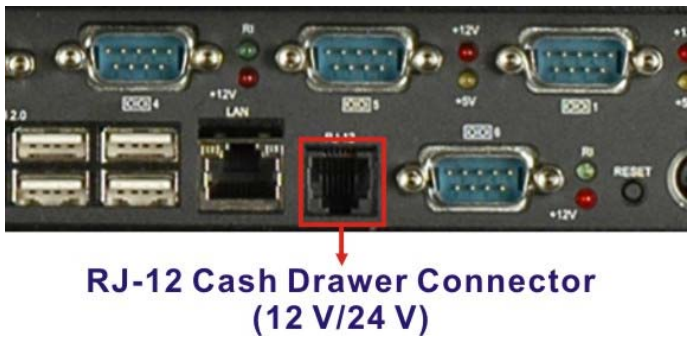


Figure 2-15: RJ-12 Connector

2.9 Wireless Connections

The following section describes the wireless modules on the circuit.

2.9.1 USB Bluetooth Module

An integrated Bluetooth module is connected to ICH7 chipset through the USB bus. The AFL-317A Bluetooth module enables wireless communications between the AFL-317A and various peripheral devices through a Bluetooth network. The peripheral devices may include:

- Headsets
- Barcode readers
- PDA
- Printers
- Cell phones
- Keyboard and mouse

The technical specifications of the Bluetooth module are listed in the Appendix.

2.9.2 Wireless Ethernet

An integrate PIFA antenna on the AFOLUX AFL-317A ensures an uninterrupted wireless connection. PIFA antennas can receive high-quality, uniform signals in any location from all directions without any signal degradation or impedance and are the most efficient antennas on the market.

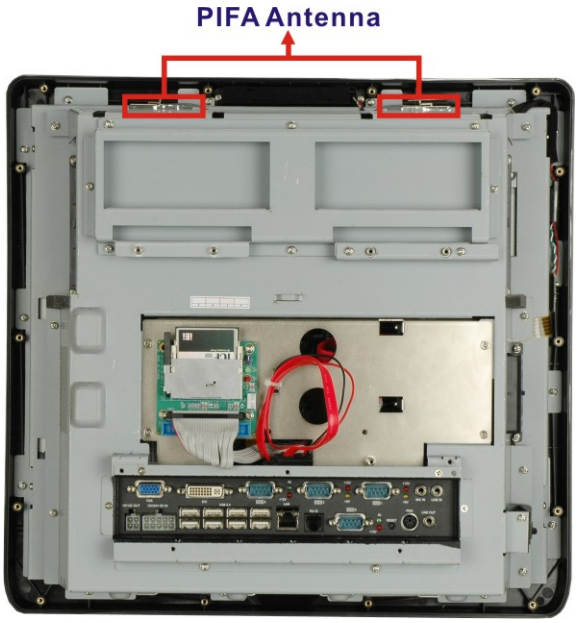


Figure 2-16: PIFA Antenna

2.10 System Ventilation

System ventilation is critical. Failure to ensure proper airflow through the system may result in irreparable damage to the AFL-317A. To help facilitate airflow through the AFL-317A, the AFL-317A has three 12 V, 3.0 Everflow cooling fans installed on the sides of the system. A further three air vents on the sides of the system ensures air can flow through the system unobstructed.

Chapter

3

Unpacking

3.1 Unpacking

To unpack the flat panel PC, follow the steps below:

WARNING!

The front side LCD screen has a protective plastic cover stuck to the screen. Only remove the plastic cover after the flat panel PC has been properly installed. This ensures the screen is protected during the installation process.

Step 1: Use box cutters, a knife or a sharp pair of scissors that seals the top side of the external (second) box.

Step 2: Open the external (second) box.

Step 3: Use box cutters, a knife or a sharp pair of scissors that seals the top side of the internal (first) box.

Step 4: Lift the monitor out of the boxes.

Step 5: Remove both polystyrene ends, one from each side.

Step 6: Pull the plastic cover off the flat panel PC.

Step 7: Make sure all the components listed in the packing list are present.

3.1.1 Packing List

The AFL-317A flat panel PC is shipped with the following components:

Quantity	Item	Image
Standard		
1	AFOLUX AFL-317A	
1	Power adapter	
1	Power cord	
1	Screw kit	
2	Camera brackets for camera angle changing	
1	2.5” HDD support bracket	
1	User manual CD and driver CD	
1	Touch pen	

Optional	
Panel mounting kit (**P/N**: AFLPK-317A)	
Wall mounting kit (**P/N**: AFLWK-19)	
Stand (**P/N**:STAND-A19)	
Stand (**P/N**:STAND-B19)	
Stand (**P/N**: STAND-210-RS)	
Arm (**P/N**: ARM-11-RS)	

Arm (**P/N**: ARM-31-RS)	

If any of these items are missing or damaged, contact the distributor or sales representative immediately.

Chapter

4

Installation

4.1 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the maintenance of the AFL-317A may result in permanent damage to the AFL-317A and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the AFL-317A. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the AFL-317A is accessed internally, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: - Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding***: - Before handling the board touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: - When configuring the AFL-317A, place it on an antic-static pad. This reduces the possibility of ESD damaging the AFL-317A.
- ***Only handle the edges of the PCB***: - When handling the PCB, hold the PCB by the edges.

4.2 Installation Precautions

When installing the flat panel PC, please follow the precautions listed below:

- **Power turned off**: When installing the flat panel PC, make sure the power is off. Failing to turn off the power may cause severe injury to the body and/or damage to the system.
- **Certified Engineers**: Only certified engineers should install and modify onboard functionalities.
- **Mounting**: The flat panel PC is a heavy device. When mounting the system onto a rack, panel, wall or arm please make sure that at least two people are assisting with the procedure.

- **Anti-static Discharge**: If a user open the rear panel of the flat panel PC, to configure the jumpers or plug in added peripheral devices, ground themselves first and wear and anti-static wristband.

4.3 Preinstalled Components

The following components are all preinstalled.

- Motherboard
- TFT LCD screen
- 1.0 GB DDR2 memory module
- Resistive type touch screen
- Wireless LAN module
- Bluetooth module
- AT/ATX power switch
- Hard disk drive (HDD)

Preinstalled OEM customizations may include the following.

- Different DDR2 memory module
- Hard disk drive

Component installation is described in **the following sections.**

4.4 Installation and Configuration Steps

The following installation steps must be followed.

Step 1: Unpack the flat panel PC

Step 2: Install CF card, HDD or optical drive

Step 3: Mount the flat panel PC

Step 4: Connect peripheral devices to the bottom panel of the flat panel PC

Step 5: Configure the system

4.5 Removing the Rear Panel

To access the AFL-317A internally the rear panel must be removed. To remove the rear panel, please follow the steps below.

Step 1: Remove the nine retention screws (**Figure 4-1**) from the rear panel.

Figure 4-1: Rear Panel Retention Screws (Rear)

Step 2: Remove the four retention screws from the bottom panel (**Figure 4-2**) and lift the panel off the AFL-317A.

Figure 4-2: Rear Panel Retention Screws (Bottom)

4.6 CF Card Installation

The AFL-317A series has one CF Type II slot. To install the CF card, follow the instructions below.

Step 1: **Remove the rear panel**. See **Section 4.5**.

Step 2: **Install the CF card**. Locate the CF card socket under the metal plate. Correctly align the CF card with the socket and insert the CF card into the socket. See **Figure 4-3**.

Figure 4-3: CF Card Insert

Step 3: **Reinstall the rear panel**. Make sure the rear panel is properly secured with the previously removed retention screws.

4.7 HDD Installation

The AFL-317A series has a hard disk drive bay for a 3.5” or 2.5” SATA HDD. To install a HDD, follow the steps below.

4.7.1 3.5” HDD Installation

NOTE:

Please make sure the purchased 3.5” HDD is the low-profile version with 0.75-inch height to be able to install in the AFL-317A.

Step 1: **Remove the rear panel**. See **Section 4.5**.

Step 2: **Remove the optical drive bracket** by removing the two retention screws shown in **Figure 4-4**.

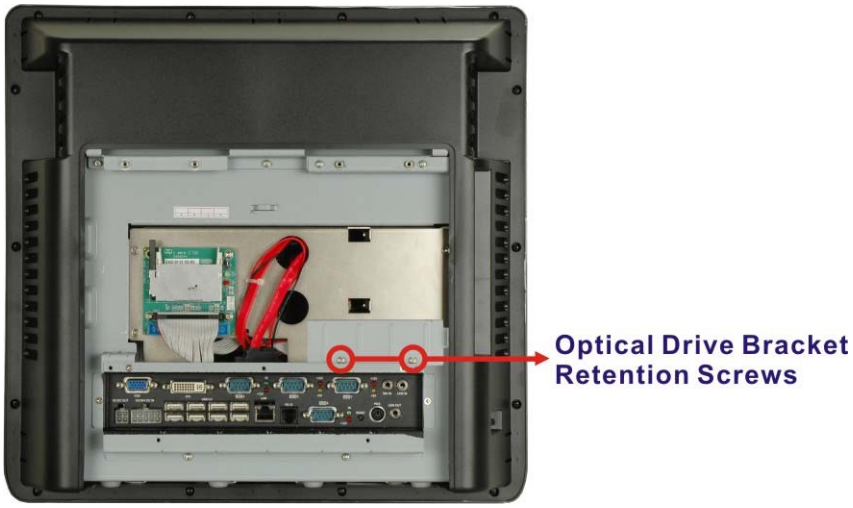


Figure 4-4: Optical Drive Bracket Retention Screws

Step 3: **Remove the HDD bracket.** The HDD bracket is attached to the AFL-317A internal chassis with four retention screws. Remove the four retention screws (**Figure 4-5**) and lift the HDD bracket.

Figure 4-5: HDD Bracket Retention Screws

Step 4: **Secure the HDD with the HDD bracket.** Connect the rear of the HDD to the SATA connector. Insert four flat head retention screws to the sides of the HDD to secure the HDD with the HDD bracket (**Figure 4-6**).

Figure 4-6: 3.5” HDD Installation

Step 5: Replace the HDD bracket to the AFL-317A.

Step 6: Replace the rear panel.

4.7.2 2.5” HDD Installation

Step 1: **Remove the rear panel**. See **Section 4.5**.

Step 2: **Remove the optical drive bracket** by removing the two retention screws shown in **Figure 4-7**.

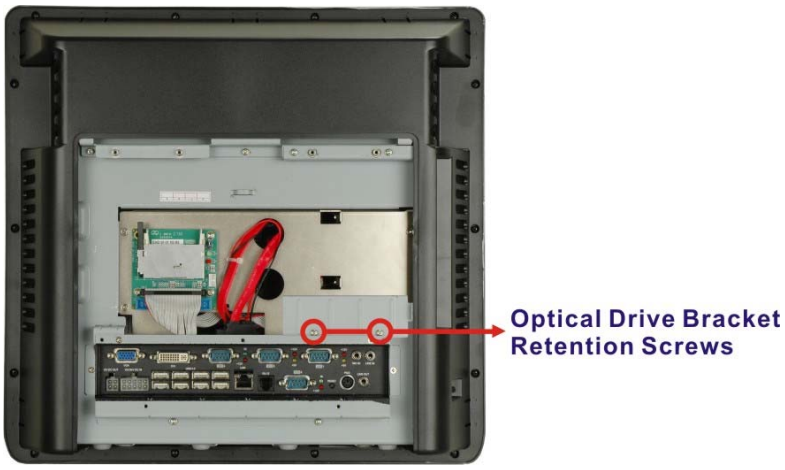


Figure 4-7: Optical Drive Bracket Retention Screws

Step 3: **Remove the HDD bracket.** The HDD bracket is attached to the AFL-317A internal chassis with four retention screws. Remove the four retention screws (**Figure 4-8**) and lift the HDD bracket.

Figure 4-8: HDD Bracket Retention Screws

Step 4: Install a support bracket (Figure 4-9) to the HDD. Align the retention screw holes on the bracket with the screw holes on the side of the HDD. Insert two retention screws to the side of the HDD to secure the bracket with the HDD.

See **Figure 4-10 ❶**.

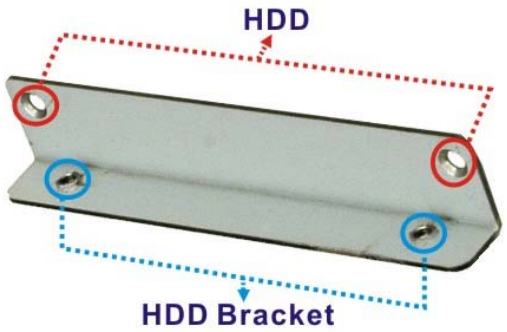


Figure 4-9: 2.5" HDD Support Bracket

Step 5: **Secure the HDD with the HDD bracket.** Connect the rear of the HDD to the SATA connector. Insert two flat head retention screws to the side of the HDD to secure the HDD with the HDD bracket (**Figure 4-10 ❷**).

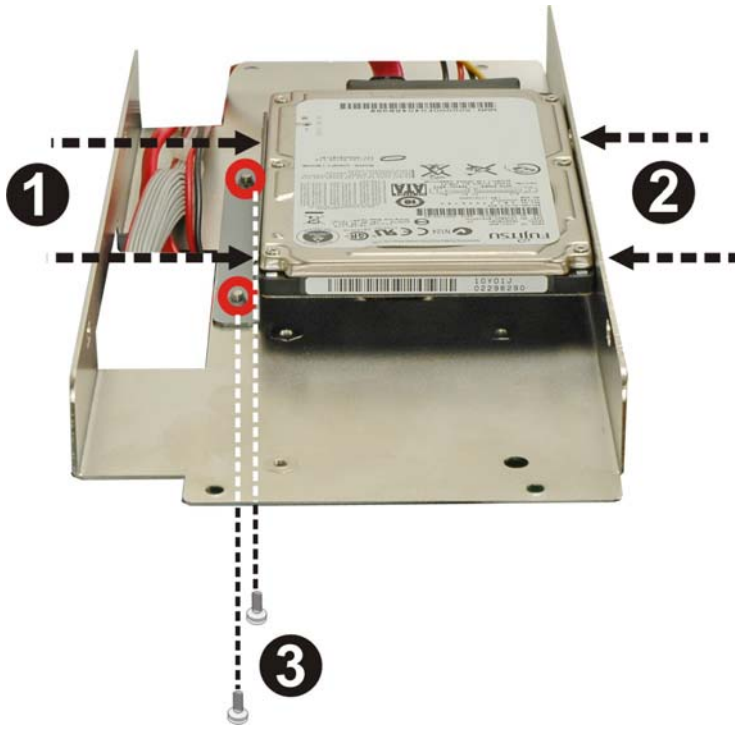


Figure 4-10: 2.5" HDD Installation

Step 6: Secure the support bracket to the HDD bracket. See **Figure 4-10 ❸**.

Step 7: Replace the HDD bracket to the AFL-317A.

Step 8: Replace the rear panel.

4.8 Optical Drive Installation

The AFL-317A series has an optical drive bay. To install an optical drive, follow the steps below.

Step 1: **Remove the rear panel**. See **Section 4.5**.

Step 2: **Remove the two optical drive brackets** by removing the four retention screws shown in **Figure 4-11**.

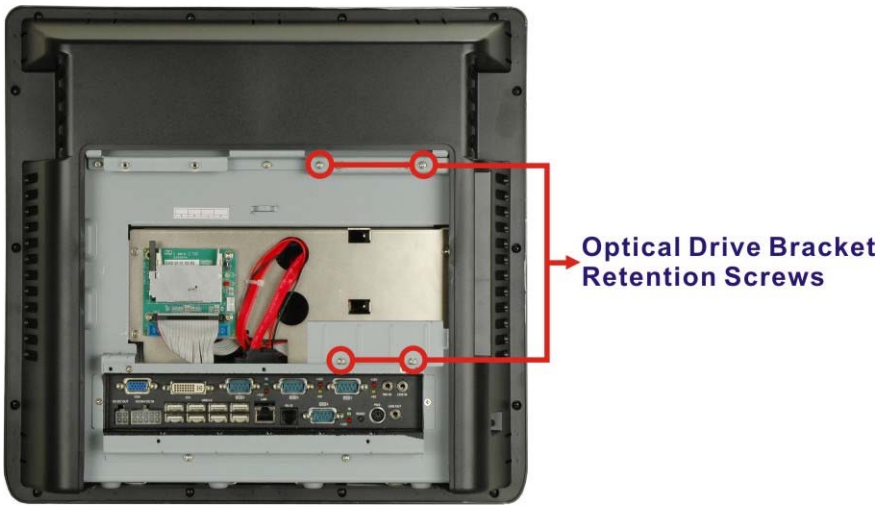


Figure 4-11: Optical Drive Bracket Retention Screws

Step 3: **Attach the optical drive brackets to an optical drive** by four retention screws. Connect the SATA cable to the SATA connector on the rear of the optical drive. Secure the SATA cable to the optical drive with two retention screws (**Figure 4-12**).

Figure 4-12: Attach Optical Drive Brackets

Step 4: **Remove the rear cover from the AFL-317A**. Remove the retention screws shown in **Figure 4-13** and lift the rear cover off the AFL-317A.

Figure 4-13: Rear Cover Retention Screws

Step 5: **Install the optical drive**. Align the optical drive with the four retention screw holes on the AFL-317A internal chassis. Secure the optical drive brackets to the chassis with four retention screws (**Figure 4-14**).

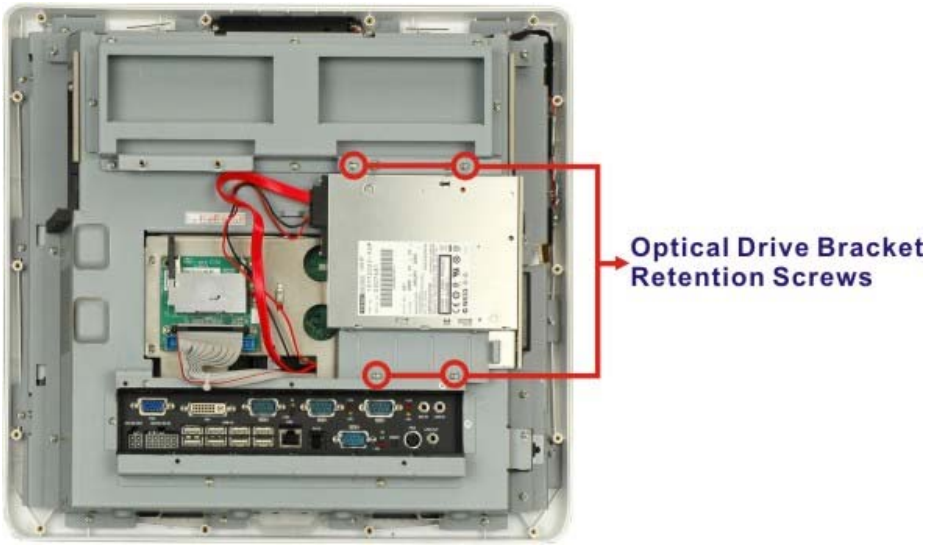


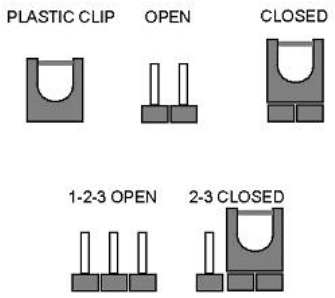
Figure 4-14: Optical Drive Installation

Step 6: Replace the rear cover.

4.9 Jumper Settings

NOTE:

A jumper is a metal bridge used to close an electrical circuit. It consists of two or three metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To CLOSE/SHORT a jumper means connecting the pins of the jumper with the plastic clip and to OPEN a jumper means removing the plastic clip from a jumper.



The following jumpers can be found on the motherboard installed in the AFL-317A. Before the AFL-317A is installed, the jumpers must be set in accordance with the desired configuration. The jumpers on the AFL-317A motherboard are listed in **Table 4-1**.

Description	Label	Type
Clear CMOS	JP1	2-pin header
COM1 Pin 9 setting	JP8	3-pin header
COM4 Pin 9 setting	JP5	3-pin header
COM5 Pin 9 setting	JP6	3-pin header
COM6 Pin 9 setting	JP7	3-pin header
COM6 RX RS-232/422/485 Select	J6	6-pin header
COM6 TX RS-422/485 Select	J7	6-pin header
COM6 D-SUB pin out select	J11	12-pin header

Table 4-1: Jumpers

4.9.1 Access the Jumpers

To access the jumpers, remove the back panel. To remove the back panel, please refer to **Section 4.7.1 Step 1 ~ Step 3**.

4.9.2 Preconfigured Jumpers

WARNING:

Do not change the settings on the jumpers in described here. Doing so may disable or damage the system

The following jumpers are preconfigured for the AFL-317A. Users should no change these jumpers (**Table 4-2**).

Jumper Name	Label	Type
LVDS voltage selection	JP4	3-pin header
Touch Screen Select	J4	4-pin header
Panel Type and Resolution	JP2	10-pin header

Table 4-2: Preconfigured Jumpers

4.9.3 Clear CMOS Jumper

Jumper Label: **JP1**

Jumper Type: 2-pin header

Jumper Settings: See **Table 4-3**

Jumper Location: See **Figure 4-15**

If the AFL-317A fails to boot due to improper BIOS settings, the clear CMOS jumper clears the CMOS data and resets the system BIOS information. To do this, use the jumper cap to close the pins for a few seconds then remove the jumper clip.

If the “CMOS Settings Wrong” message is displayed during the boot up process, the fault may be corrected by pressing the F1 to enter the CMOS Setup menu. Do one of the following:

- Enter the correct CMOS setting
- Load Optimal Defaults
- Load Failsafe Defaults.

After having done one of the above, save the changes and exit the CMOS Setup menu.

The clear CMOS jumper settings are shown in Table 4-3.

Clear CMOS	Description	
OPEN	Keep CMOS Setup	Default
SHORT	Clear CMOS Setup	

Table 4-3: Clear CMOS Jumper Settings

The location of the clear CMOS jumper is shown in **Figure 4-15** below.

Figure 4-15: Clear CMOS Jumper

4.9.4 COM Port Pin 9 Select

Jumper Label:	**JP5, JP6, JP7** and **JP8**
Jumper Type:	10-pin header
Jumper Settings:	See **Table 4-4**
Jumper Location:	See **Figure 4-16**

Four jumpers (JP5, JP6, JP7 and JP8) configure pin 9 on COM1, COM4, COM5 and COM6 DB-9 connectors. Pin 9 on the COM1 and the COM5 DB-9 connectors can be set as either +5 V or +12 V. Pin 9 on the COM4 and COM6 DB-9 connectors can be set as either +12 V or as the ring (RI) signal. The COM1, COM4, COM5 and COM6 Pin 9 Setting jumper selection options are shown in **Table 4-4**.

	Short 1 – 2	Short 2 – 3 (Default)
JP5	COM4 RI Pin use +12 V	COM4 RI Pin use RI
JP6	COM5 RI Pin use +12 V	COM5 RI Pin use +5 V
JP7	COM6 RI Pin use +12 V	COM6 RI Pin use RI
JP8	COM1 RI Pin use +12 V	COM1 RI Pin use +5 V

Table 4-4: COM1, COM4, COM5 and COM6 Pin 9 Setting Jumper Settings

The COM1, COM4, COM5 and COM6 Pin 9 Setting jumper location are shown in **Figure 4-16** below.

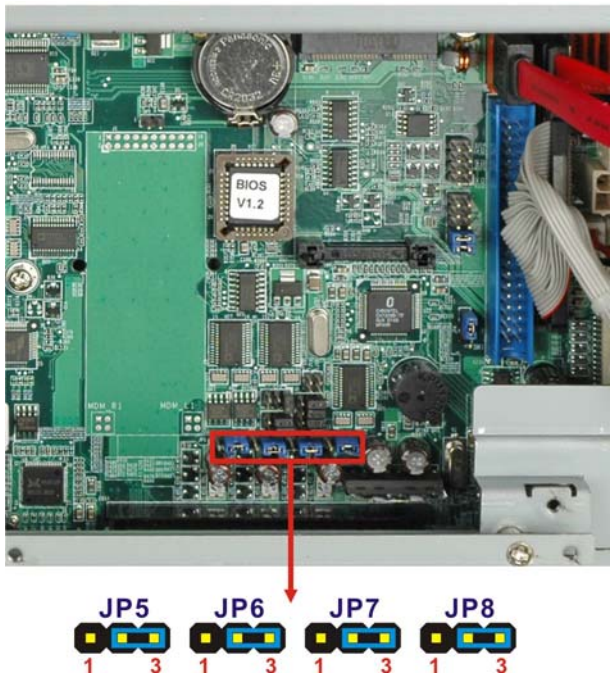


Figure 4-16: COM1, COM4, COM5 and COM6 Pin 9 Setting Jumper Locations

4.9.4.1 COM6 RS-422 and RS-485 Pinouts

The pinouts for RS-422 and RS-485 operation of external serial port COM 6 are detailed below.

COM 6	RS-422 Description
Pin 1	TX-
Pin 2	TX+
Pin 6	RX-
Pin 7	RX+

Table 4-5: RS-422 Pinouts

COM 6	RS-485 Description
Pin 1	Data-
Pin 2	Data+

Table 4-6: RS-485 Pinouts

4.9.5 COM6 RX Function Select Jumper

Jumper Label:	**J6**
Jumper Type:	6-pin header
Jumper Settings:	See **Table 4-7**
Jumper Location:	See **Figure 4-17**

The COM6 RX Function Select jumper sets the communication protocol used by the RX serial communications port COM6 as RS-232, RS-422 or RS-485. The COM6 RX Function Select jumper settings are shown in **Table 4-7**.

COM6 RX Function Select	Description	
Short 1-2	RS-232	Default
Short 3-4	RS-422	
Short 4-6	RS-485	

Table 4-7: COM6 RX Function Select Jumper Settings

The COM6 RX Function Select jumper location is shown in **Figure 4-17**.

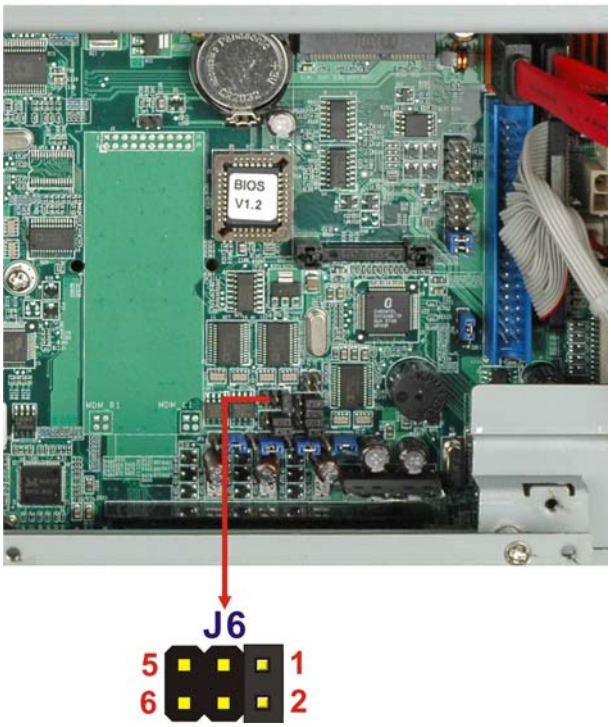


Figure 4-17: COM6 RX Function Select Jumper Location

4.9.6 COM6 TX Function Select Jumper

Jumper Label:	**J7**
Jumper Type:	6-pin header
Jumper Settings:	See **Table 4-8**
Jumper Location:	See **Figure 4-18**

The COM6 TX Function Select jumper configures the TX pin on COM6 serial port connector as RS-422 as an RS-485. The COM6 TX Function Select jumper selection options are shown in **Table 4-8**.

COM6 TX Function Select	Description	
Short 1 – 3	RS-422	Default
Short 2 – 4	RS-422	Default
Short 3 – 5	RS-485	
Short 4 – 6	RS-485	

Table 4-8: COM6 TX Function Select Jumper Settings

The COM6 TX Function Select jumper location is shown in **Figure 4-18** below.

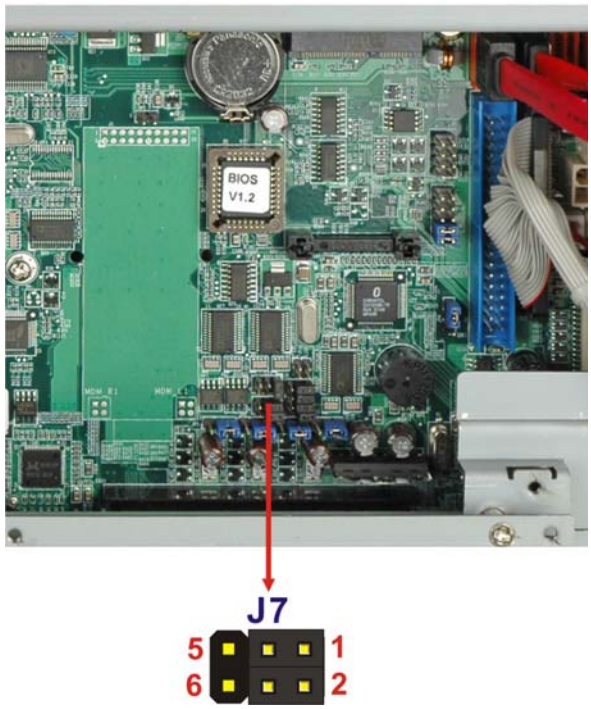


Figure 4-18: COM6 TX Function Select Jumper Pinout Location

4.9.7 COM6 RS-232/422/485 Serial Port Select Jumper

Jumper Label: **J11**

Jumper Type: 12-pin header (four 3-pin headers combined)

Jumper Settings: See **Table 4-9**

Jumper Location: See **Figure 4-19**

The COM6 RS-232/422/485 Serial Port Select jumper sets the communication protocol used by the second serial communications port (COM6) as RS-232, RS-422 or RS-485. The COM6 RS-232/422/485 Serial Port Select settings are shown in **Table 4-9**.

RS-232/485 Select	Description	
Short 1-2	RS-232	Default
Short 4-5	RS-232	Default
Short 7-8	RS-232	Default
Short 10-11	RS-232	Default
Short 2-3	RS-422/485	
Short 5-6	RS-422/485	
Short 8-9	RS-422/485	
Short 11-12	RS-422/485	

Table 4-9: COM6 RS-232/422/485 Serial Port Select Jumper Settings

The COM6 RS-232/422/485 Serial Port Select jumper location is shown in **Figure 4-19**.

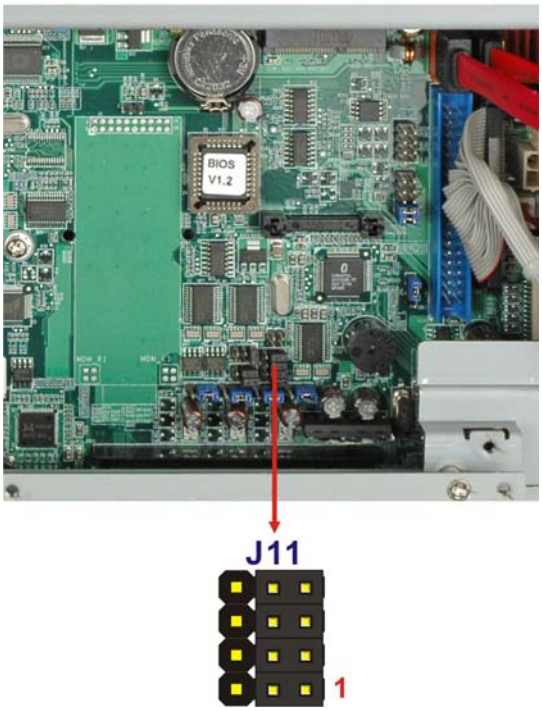


Figure 4-19: COM6 RS-232/422/485 Serial Port Select Jumper Location

4.10 AT/ATX Mode Selection

AT and ATX power modes can both be used on the AFOLUX AFL-317A flat panel PC. The selection is made through an AT/ATX switch on the aluminum chassis inside the plastic back cover (**Figure 4-21**). To select AT mode or ATX mode, follow the steps below.

Step 1: **Remove the plastic back cover**. To do this, remove the 12 retention screws from the back cover (**Figure 4-20**).

WARNING!

Watch out for the two internal PIFA antennas when removing the back cover. There are three PIFA antennas preinstalled on the top of the internal chassis (see **Figure 2-16**). To prevent these antennas from damage, be very careful when lifting the back cover off the AFL-317A.

Figure 4-20: Back Cover Retention Screws

Step 2: Locate the AT/ATX switch on the aluminum chassis (**Figure 4-21**).

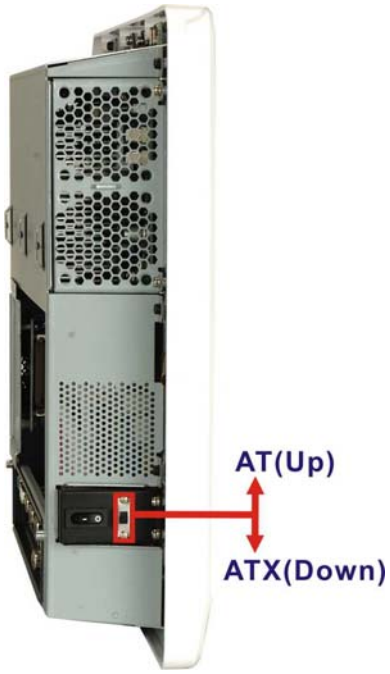


Figure 4-21: AT/ATX Switch

Step 3: The system is set to ATX mode by default. To change to the AT mode, just adjust the AT/ATX switch to AT mode.

Step 4: To switch from AT mode to ATX mode, please **load BIOS default** or **clear CMOS first**. Then adjust the switch to ATX mode.

NOTE:

To load BIOS default, please use the **Load Optimal Defaults** option of the Exit menu in the BIOS (refer to **Section 6.8** on **page 116**) to load the optimal default values for each of the parameters on the Setup menus. **F9 key can be used for this operation.**

4.11 Changing Camera Angle

The preinstalled digital camera on the front panel has a 10 degrees look-down angle by default. The camera angle can be changed to 0 degree or 10 degrees look-up angle. To change the camera angel, follow the steps below.

Step 1: **Remove the plastic back cover**. To do this, remove the 14 retention screws from the back cover (**Figure 4-22**).

Figure 4-22: Plastic Back Cover Retention Screws

Step 2: **Remove the camera bracket**. The board camera is installed on the bracket and secured to the AFL-317A by two retention screws. Remove the two retention screws (**Figure 4-23**) and lift the camera bracket.

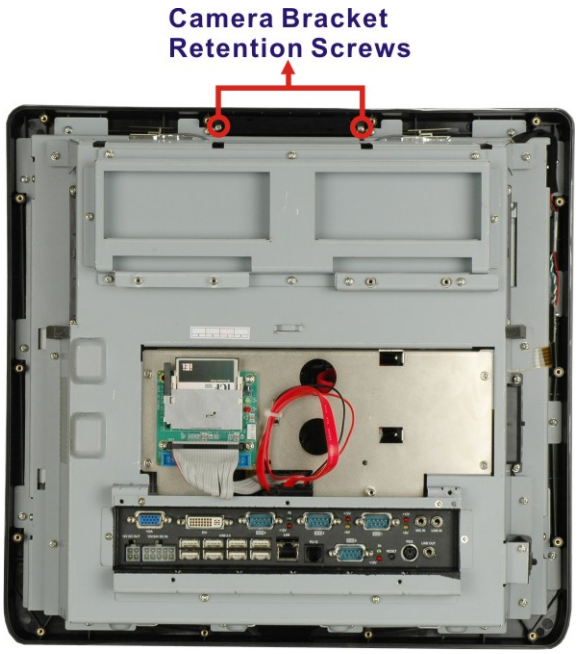


Figure 4-23: Camera Bracket Retention Screws

Step 3: **Remove the board camera.** Detach the two clips on the bracket from the board camera and lift the board camera. Disconnect the board camera. See **Figure 4-24**.

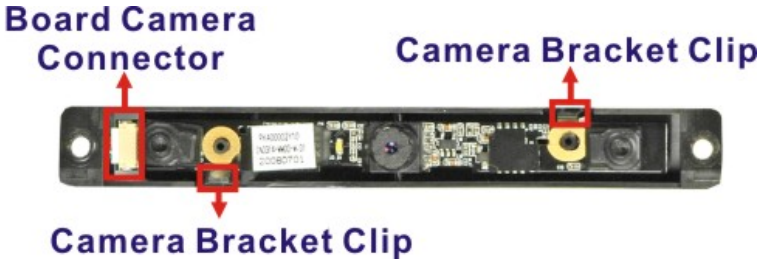


Figure 4-24: Board Camera Removal

Step 4: **Choose a bracket with desired camera angle**. The AFL-317A is come with two camera brackets (**Figure 4-25**). One is for 0 degree camera angle (+0) and the other one is for 10 degree look-up angle (+10). Choose the bracket by the number marked on the bracket.

Figure 4-25: Camera Brackets

Step 5: **Connect the board camera to the connector**. Pass the camera cable through the hole in the camera bracket. Connect the board camera to the camera cable.

Step 6: **Attach the board camera to the new bracket**. Push the board camera into the bracket carefully until the two clips secure the board.

Step 7: **Reinstall the camera bracket to the AFL-317A** with two retention screws.

Step 8: **Replace the plastic back cover.**

Step 9: **Replace the rear panel.**

4.12 Mounting the System

WARNING!

When mounting the flat panel PC onto an arm, onto the wall or onto a panel, it is better to have more than one person to help with the installation to make sure the panel PC does not fall down and get damaged.

The four methods of mounting the AFOLUX AFL-317A are listed below.

- Wall mounting
- Panel mounting

- Arm mounting
- Rack mounting

The four mounting methods are described below.

4.12.1 Wall Mounting

To mount the flat panel PC onto the wall, please follow the steps below.

Step 10: Select the location on the wall for the wall-mounting bracket.

Step 11: Carefully mark the locations of the four screw holes in the bracket on the wall.

Step 12: Drill four pilot holes at the marked locations on the wall for the bracket retention screws.

Step 13: Align the wall-mounting bracket screw holes with the pilot holes.

Step 14: Secure the mounting-bracket to the wall by inserting the retention screws into the four pilot holes and tightening them (**Figure 4-26**).

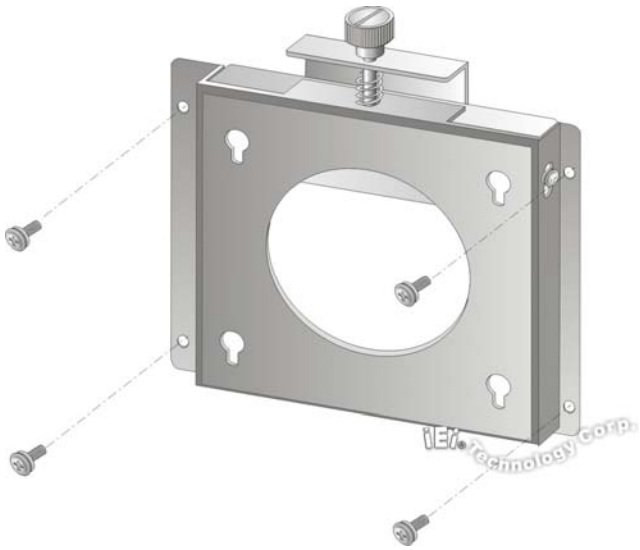


Figure 4-26: Wall-mounting Bracket

Step 15: Insert the four monitor mounting screws provided in the wall mounting kit into the four screw holes on the real panel of the flat panel PC and tighten until the screw shank is secured against the rear panel (**Figure 4-27**).

Step 16: Align the mounting screws on the monitor rear panel with the mounting holes on the bracket.

Step 17: Carefully insert the screws through the holes and gently pull the monitor downwards until the monitor rests securely in the slotted holes (**Figure 4-27**). Ensure that all four of the mounting screws fit snuggly into their respective slotted holes.

NOTE:

In the diagram below the bracket is already installed on the wall.

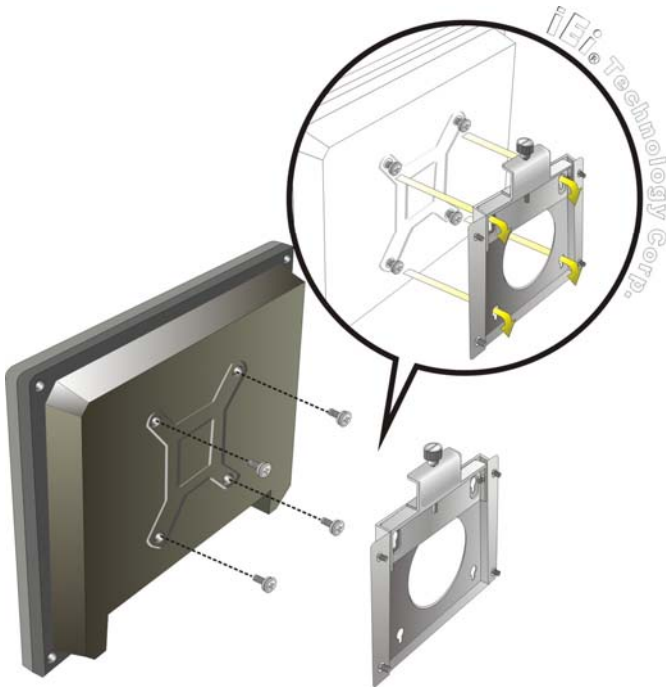


Figure 4-27: Chassis Support Screws

Step 18: Secure the panel PC by fastening the retention screw of the wall-mounting bracket. (**Figure 4-28**).

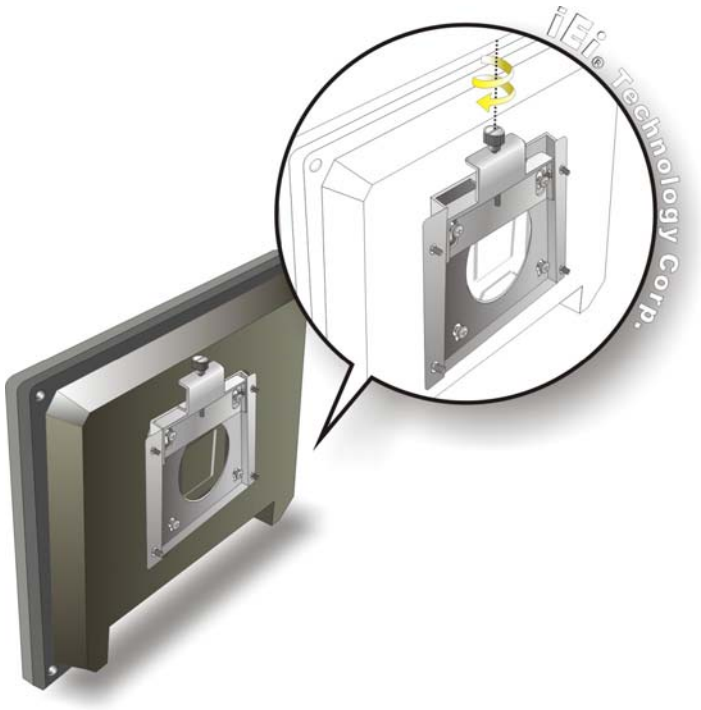


Figure 4-28: Secure the Panel PC

4.12.2 Panel Mounting

To mount the AFOLUX AFL-317A series flat panel PC into a panel, please follow the steps below.

Step 1: Select the position on the panel to mount the flat panel PC.

Step 2: Cut out a section from the panel that corresponds to the rear panel dimensions of the flat panel PC. Take care that the panel section that is cut out is smaller than the overall size of the frame that surrounds the flat panel PC but just large enough for the rear panel of the flat panel PC to fit through (see **Figure 4-29**).

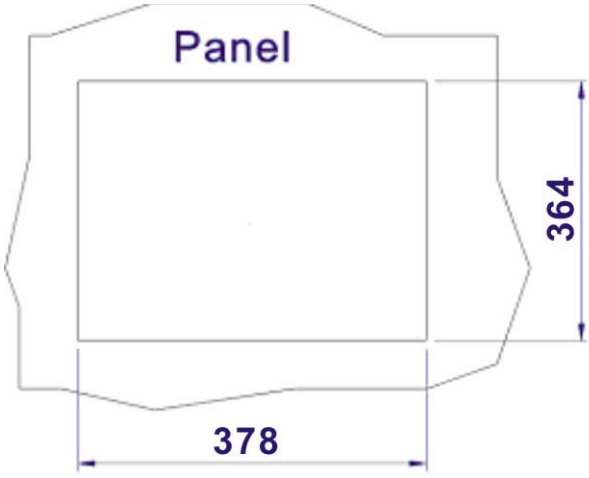


Figure 4-29: AFL-317A Panel Opening

Step 3: Slide the flat panel PC through the hole until the frame is flush against the panel.

Step 4: Insert the panel mounting clamps into the pre-formed holes along the edges of the chassis, behind the frame.

Step 5: Tighten the screws that pass through the panel mounting clamps until the plastic caps at the front of all the screws are firmly secured to the panel (**Figure 4-30**).

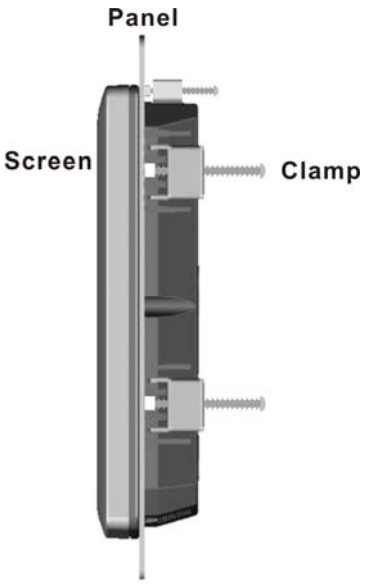


Figure 4-30: Tighten the Panel Mounting Clamp Screws

4.12.3 Arm Mounting

The AFOLUX AFL-317A series is VESA (Video Electronics Standards Association) compliant and can be mounted on an arm with a 100 mm interface pad. To mount the AFOLUX AFL-317A series on an arm, please follow the steps below.

Step 1: The arm is a separately purchased item. Please correctly mount the arm onto the surface it uses as a base. To do this, refer to the installation documentation that came with the mounting arm.

NOTE:

When purchasing the arm please ensure that it is VESA compliant and that the arm has a 100 mm interface pad. If the mounting arm is not VESA compliant it cannot be used to support the AFOLUX AFL-317A series flat panel PC.

Step 2: Once the mounting arm has been firmly attached to the surface, lift the flat panel PC onto the interface pad of the mounting arm.

Step 3: Align the retention screw holes on the mounting arm interface with those in the flat panel PC. The AFL-317A arm mount retention screw holes are shown in **Figure 4-31**.

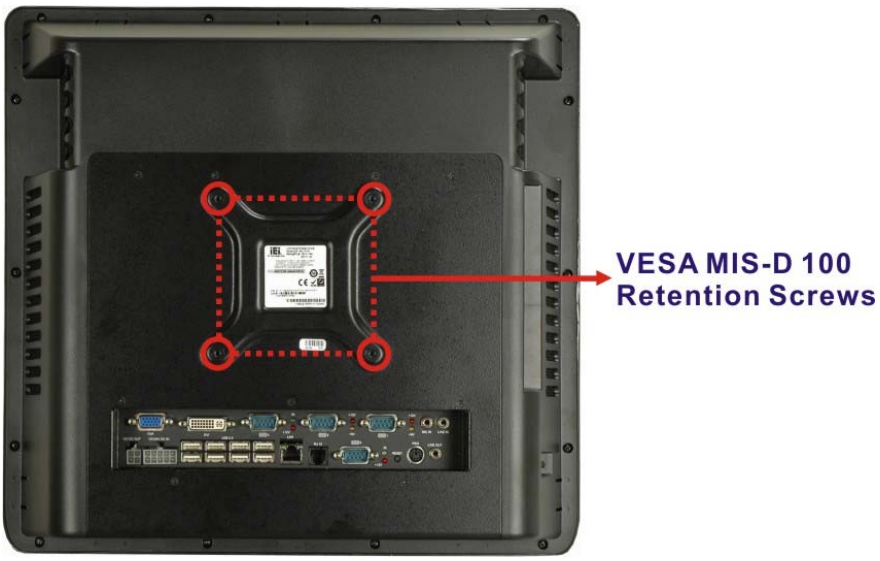


Figure 4-31: AFL-317A Arm Mounting Retention Screw Holes

Step 4: Secure the flat panel PC to the interface pad by inserting four retention screws through the bottom of the mounting arm interface pad and into the flat panel PC.

4.13 Bottom Panel Connectors

4.13.1 LAN Connection

There is one external RJ-45 LAN connector. The RJ-45 connector enables connection to an external network. To connect a LAN cable with an RJ-45 connector, please follow the instructions below.

Step 1: **Locate the RJ-45 connectors** on the bottom panel of the AFOLUX AFL-317A Series.

Step 2: **Align the connectors.** Align the RJ-45 connector on the LAN cable with one of the RJ-45 connectors on the bottom panel of the AFOLUX AFL-317A Series. See **Figure 4-32**.

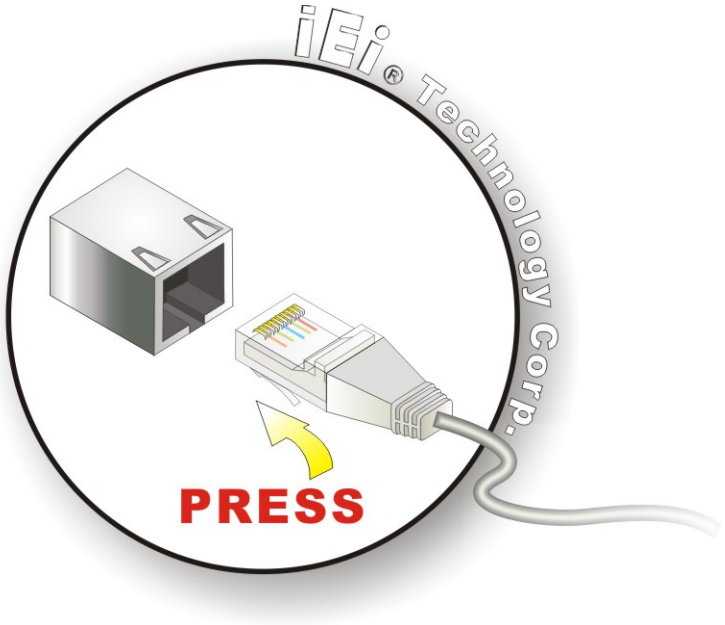


Figure 4-32: LAN Connection

Step 3: **Insert the LAN cable RJ-45 connector.** Once aligned, gently insert the LAN cable RJ-45 connector into the onboard RJ-45 connector.

4.13.2 Serial Device Connection

The AFOLUX AFL-317A Series has four male DB-9 connectors on the bottom panel for serial devices to be connected. Follow the steps below to connect a serial device to the AFOLUX AFL-317A Series panel PC.

Step 1: **Locate the DB-9 connector**. The location of the DB-9 connector is shown in **Chapter 2**.

Step 2: **Insert the serial connector**. Insert the DB-9 connector of a serial device into the DB-9 connector on the bottom panel. See **Figure 4-33**.

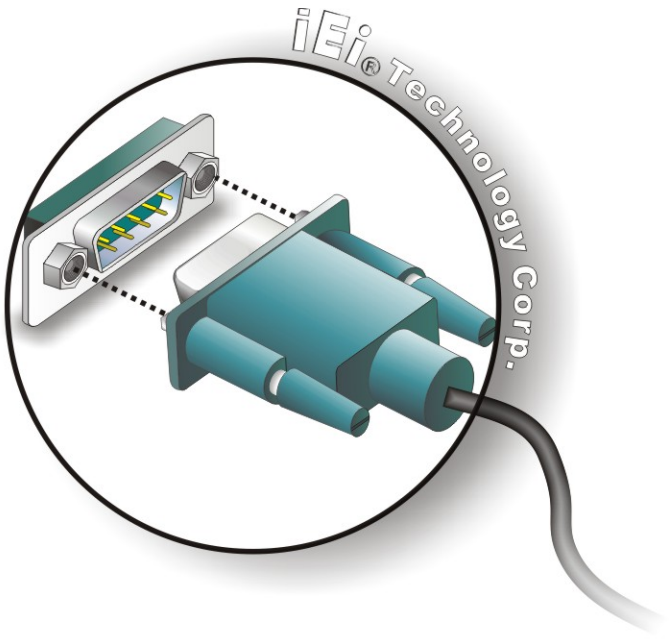


Figure 4-33: Serial Device Connector

Step 3: **Secure the connector**. Secure the serial device connector to the external interface by tightening the two retention screws on either side of the connector.

4.13.3 USB Device Connection

There are four external USB 2.0 connectors. All connectors are perpendicular to the AFOLUX AFL-317A Series. To connect a USB 2.0 or USB 1.1 device, please follow the instructions below.

Step 1: **Located the USB connectors**. The locations of the USB connectors are shown in **Chapter 2**.

Step 2: **Align the connectors.** Align the USB device connector with one of the connectors on the bottom panel. See **Figure 4-34**.

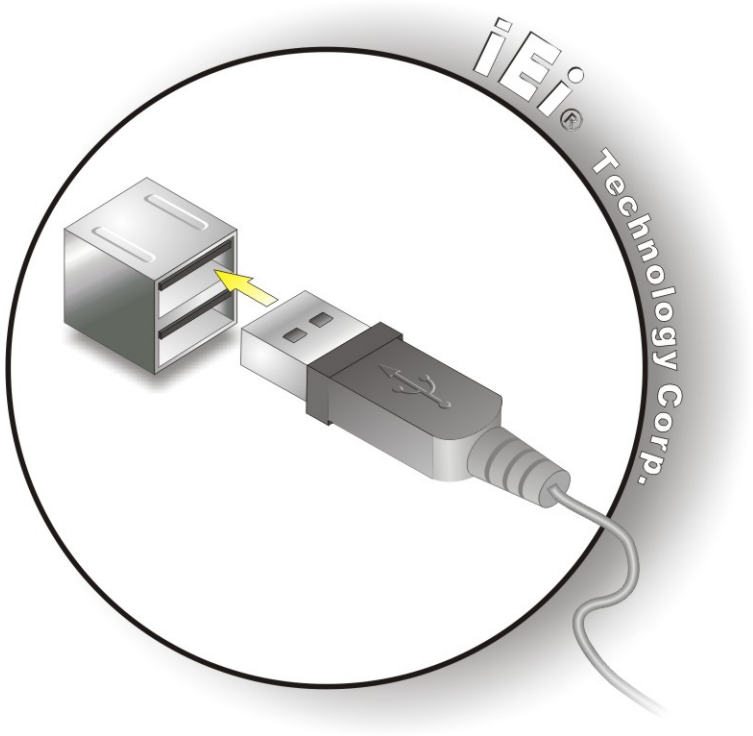


Figure 4-34: USB Device Connection

Step 3: **Insert the device connector.** Once aligned, gently insert the USB device connector into the onboard connector.

4.14 Webcam Driver Installation

To install the webcam driver, please follow the instructions below.

Step 1: Run the CD that came with the AFL-317A on the AFL-317A.

Step 2: Locate the Webcam installation program.

Step 3: Click the webcam driver installation icon

Step 4: The program prepares for installation. See **Figure 4-35**.

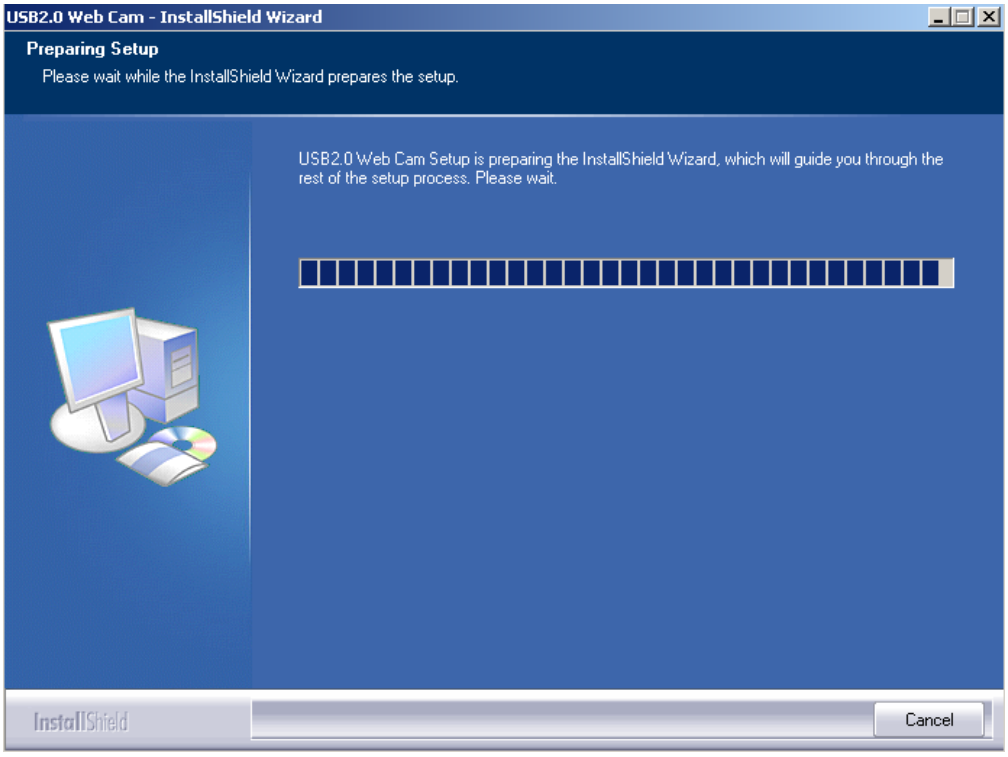

USB2.0 Web Cam - InstallShield Wizard
Preparing Setup
Please wait while the InstallShield Wizard prepares the setup.
USB2.0 Web Cam Setup is preparing the InstallShield Wizard, which will guide you through the rest of the setup process. Please wait.
InstallShield
Cancel

Figure 4-35: Preparing for Driver Installation

Step 5: When the driver is ready to be installed, the screen in **Figure 4-36** appears.

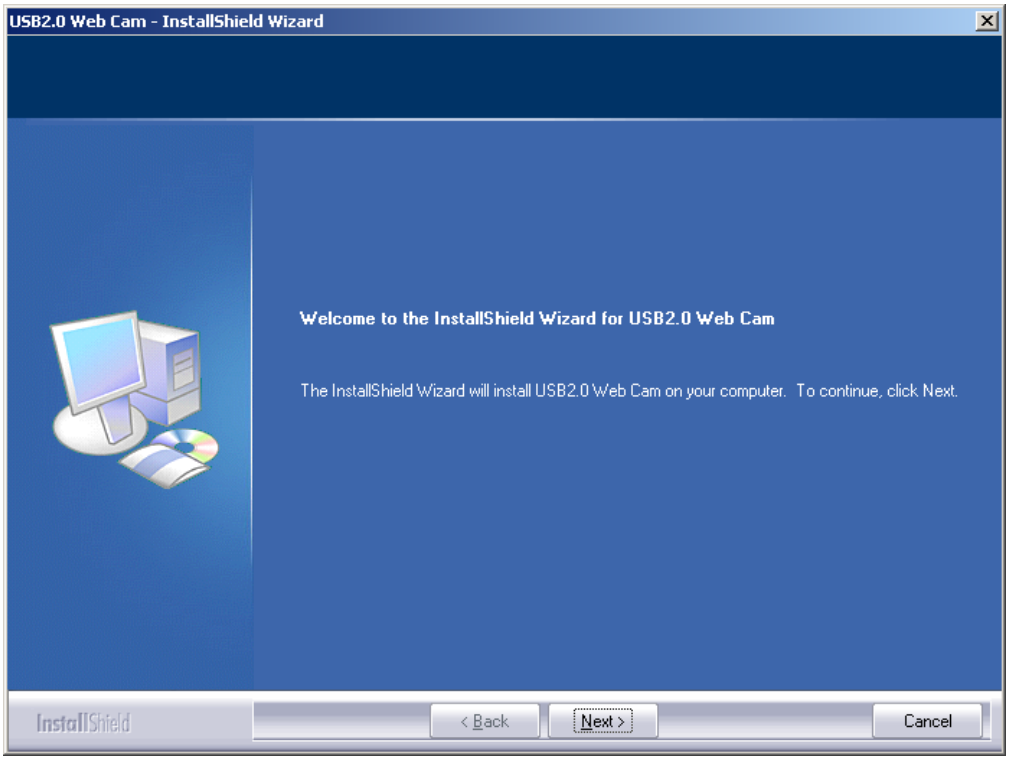

USB2.0 Web Cam - InstallShield Wizard
Welcome to the InstallShield Wizard for USB2.0 Web Cam
The InstallShield Wizard will install USB2.0 Web Cam on your computer. To continue, click Next.
InstallShield
< Back
Next >
Cancel

Figure 4-36: Driver Installation Starting Screen

Step 6: Click **NEXT** in **Figure 4-36** to continue.

Step 7: The program is ready for installation. See **Figure 4-37**.

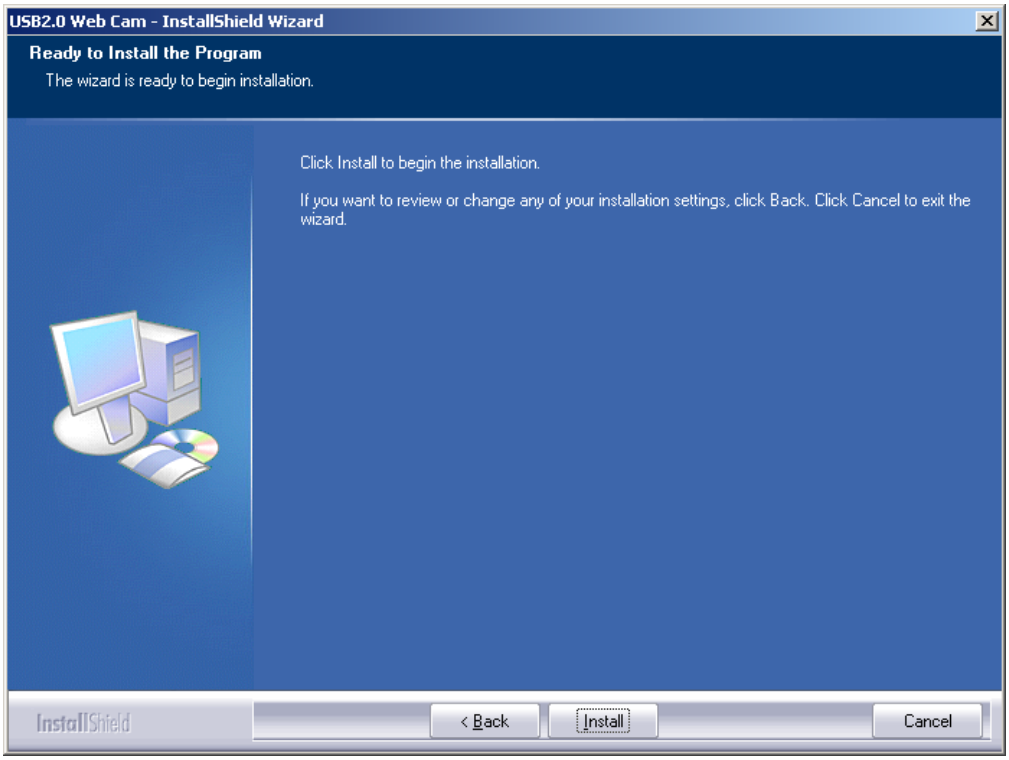

USB2.0 Web Cam - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

Figure 4-37: Ready to Install Driver

Step 8: Click **INSTALL** in **Figure 4-37** to continue.

Step 9: The driver is then installed. See **Figure 4-38**.

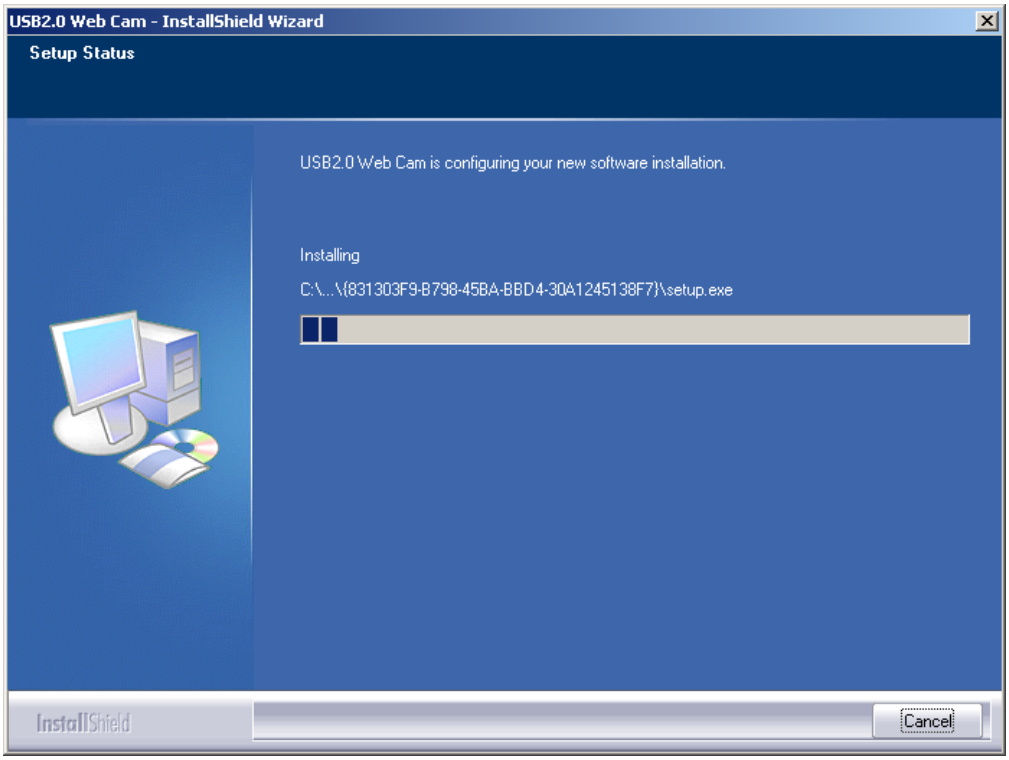


Figure 4-38: Driver Installs

Step 10: Click **YES** when asked for digital signature affirmation. See **Figure 4-39**.

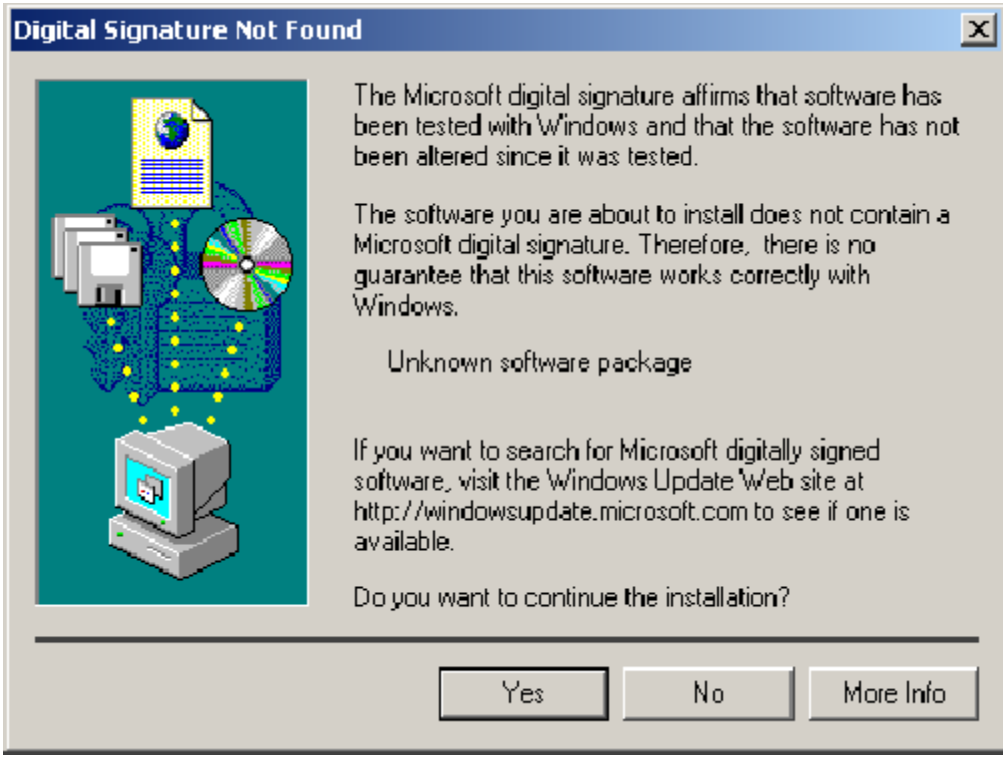

Digital Signature Not Found
The Microsoft digital signature affirms that software has been tested with Windows and that the software has not been altered since it was tested.
The software you are about to install does not contain a Microsoft digital signature. Therefore, there is no guarantee that this software works correctly with Windows.
Unknown software package
If you want to search for Microsoft digitally signed software, visit the Windows Update Web site at http://windowsupdate.microsoft.com to see if one is available.
Do you want to continue the installation?
Yes
No
More Info

Figure 4-39: Confirm Digital Signature

Step 11: The installation process is complete See **Figure 4-40**. Click **FINISH** to confirm.

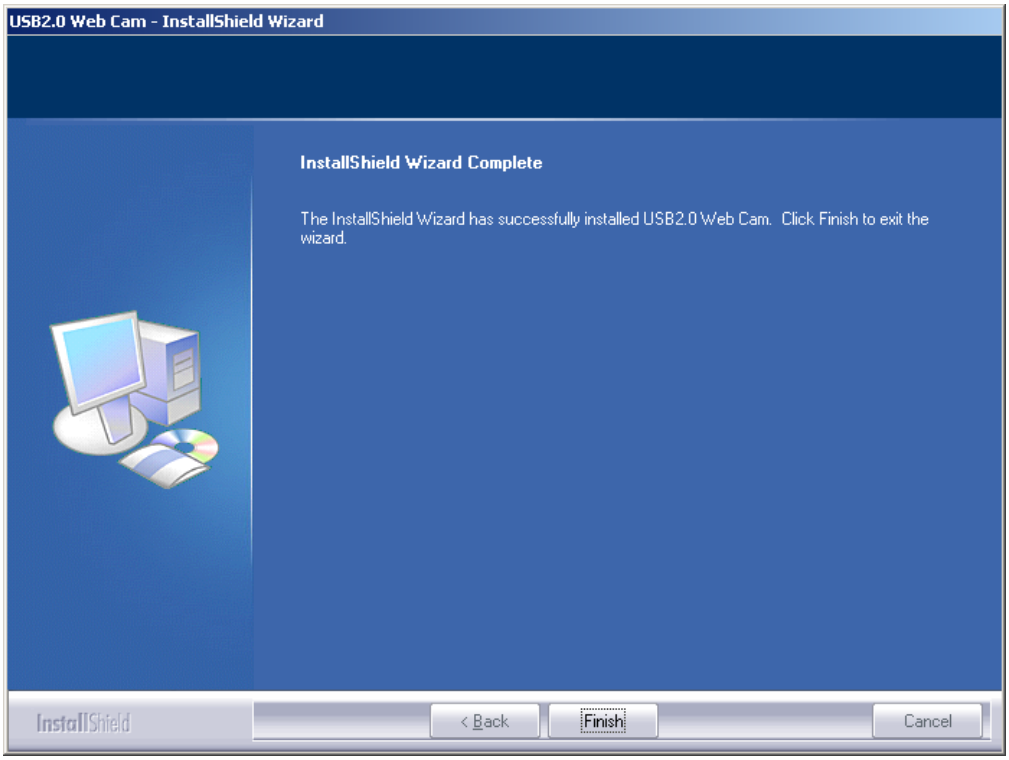

USB2.0 Web Cam - InstallShield Wizard
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed USB2.0 Web Cam. Click Finish to exit the wizard.
InstallShield
< Back
Finish
Cancel

Figure 4-40: Installation Complete

Step 12: Restart the computer. See **Figure 4-41**.

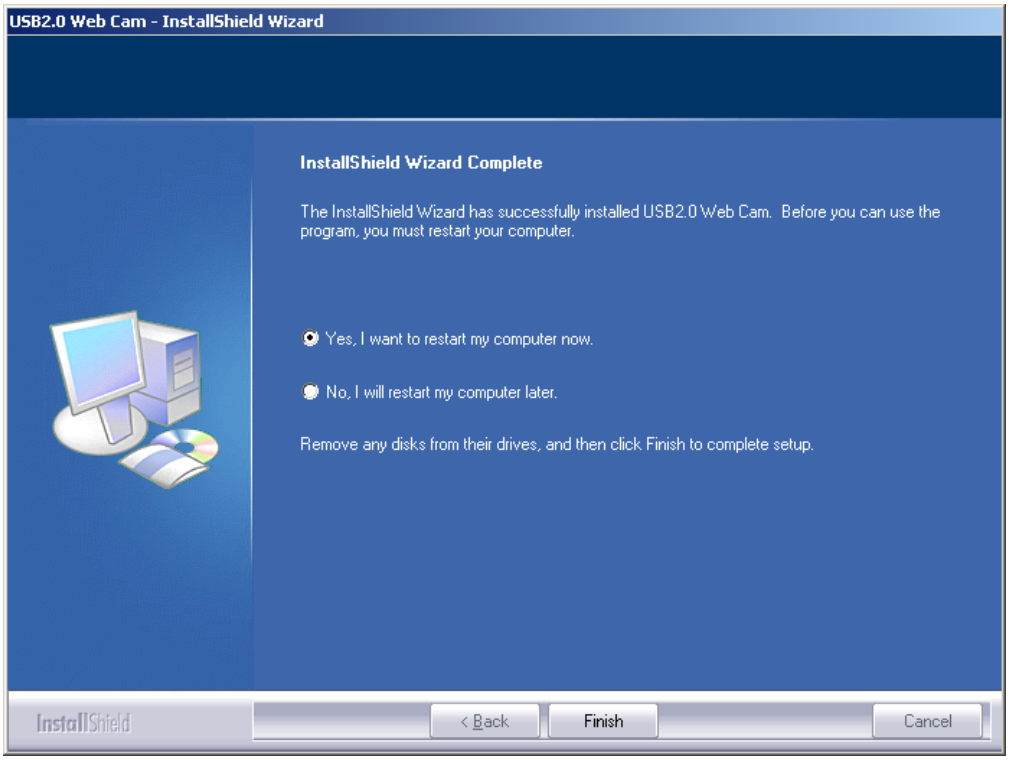

USB2.0 Web Cam - InstallShield Wizard
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed USB2.0 Web Cam. Before you can use the program, you must restart your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
InstallShield
< Back
Finish
Cancel

Figure 4-41: Restart the computer.

Chapter

4

System Maintenance

5.1 System Maintenance Introduction

If the components of the AFOLUX AFL-317A series fail they must be replaced. Components that can be replaced include:

- CF Module
- SATA HDD
- Camera
- Bluetooth module
- Wireless LAN module
- Cooling Fans
- DIMM module
- CPU

Please contact the system reseller or vendor to purchase the replacement parts. Back cover removal instructions for the AFOLUX AFL-317A series are described below.

5.2 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the maintenance of the AFL-317A may result in permanent damage to the AFL-317A and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the AFL-317A. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the AFL-317A is accessed internally, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: - Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding***: - Before handling the board touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.

- ***Use an anti-static pad***: - When configuring the AFL-317A, place it on an antic-static pad. This reduces the possibility of ESD damaging the AFL-317A.
- ***Only handle the edges of the PCB***: - When handling the PCB, hold the PCB by the edges.

5.3 Turn off the Power

WARNING:

Failing to turn off the system before opening it can cause permanent damage to the system and serious or fatal injury to the user.

Before any maintenance procedures are carried out on the system, make sure the system is turned off.

5.4 Opening the System

5.4.1 Removing the Back Panel

To access the AFL-317A internally the back panel must be removed. To remove the back panel, please follow the steps below.

Step 1: **Follow all anti-static procedures**. See **Section 5.2**.

Step 2: **Turn off the power**. See **Section 5.3**.

Step 3: **Remove the retention screws on the back**. Remove the nine retention screws (**Figure 5-1**) from the rear panel.

Figure 5-1: Rear Panel Retention Screws (Back)

Step 4: **Remove the retention screws from the bottom**. Remove the four retention screws from the bottom surface of the back panel. See **Figure 5-2**.

Figure 5-2: Rear Panel Retention Screws (Bottom)

Step 5: **Remove the rear panel**. Gently lift the rear panel.

5.4.2 Removing the Plastic Cover

To access the AT/ATX selection switch and the digital camera, the white/black plastic cover must be removed. To do this, follow the steps below.

Step 1: **Follow all anti-static procedures**. See **Section 5.2**.

Step 2: **Turn off the power**. See **Section 5.3**.

Step 3: **Remove the back panel**. See **Section 5.4.1**.

Step 4: **Remove the plastic back cover**. To do this, remove the 14 retention screws from the back cover. See **Figure 5-3**.

Figure 5-3: Back Cover Retention Screws

5.5 Replacing Components

5.5.1 Hard Disk Drive Replacement

If the HDD fails, please follow the steps below:

Step 1: **Follow all anti-static procedures**. See **Section 5.2**.

Step 2: **Turn off the power**. See **Section 5.3**.

Step 3: **Remove the back panel**. See **Section 5.4.1**.

Step 4: **Follow the instruction listed in Section 4.7 to replace the HDD.**

5.5.2 CF Card Replacement

The AFOLUX AFL-317A series has one CF Type II slot. To replace the CF card, follow the instructions below.

Step 1: **Follow all anti-static procedures**. See **Section 5.2**.

Step 2: **Turn off the power**. See **Section 5.3**.

Step 3: **Remove the back panel**. See **Section 5.4.1**.

Step 4: **Follow the instruction listed in Section 4.6 to replace the CF card.**

5.6 Reinstalling the Covers

WARNING:

Failing to reinstall the covers may result in permanent damage to the system. Please make sure all coverings are properly installed.

When maintenance procedures are complete, please make sure all the covers are replaced, including the following:

- Plastic cover
- HDD bracket
- Back panel

Chapter

6

AMI BIOS Setup

6.1 Introduction

A licensed copy of AMI BIOS is preprogrammed into the ROM BIOS. The BIOS setup program allows users to modify the basic system configuration. This chapter describes how to access the BIOS setup program and the configuration options that may be changed.

6.1.1 Starting Setup

The AMI BIOS is activated when the computer is turned on. The setup program can be activated in one of two ways.

1. Press the **DELETE** key as soon as the system is turned on or
2. Press the **DELETE** key when the "**Press Del to enter SETUP**" message appears on the screen.

If the message disappears before the **DELETE** key is pressed, restart the computer and try again.

6.1.2 Using Setup

Use the arrow keys to highlight items, press **ENTER** to select, use the PageUp and PageDown keys to change entries, press **F1** for help and press **ESC** to quit. Navigation keys are shown in.

Key	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left hand side
Right arrow	Move to the item on the right hand side
Esc key	Main Menu – Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
Page Up key	Increase the numeric value or make changes
Page Dn key	Decrease the numeric value or make changes

F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 /F3 key	Change color from total 16 colors. F2 to select color forward.
F10 key	Save all the CMOS changes, only for Main Menu

Table 6-1: BIOS Navigation Keys

6.1.3 Getting Help

When **F1** is pressed a small help window describing the appropriate keys to use and the possible selections for the highlighted item appears. To exit the Help Window press **Esc** or the **F1** key again.

6.1.4 Unable to Reboot After Configuration Changes

If the computer cannot boot after changes to the system configuration is made, CMOS defaults. Use the jumper described in **Chapter 5**.

6.1.5 BIOS Menu Bar

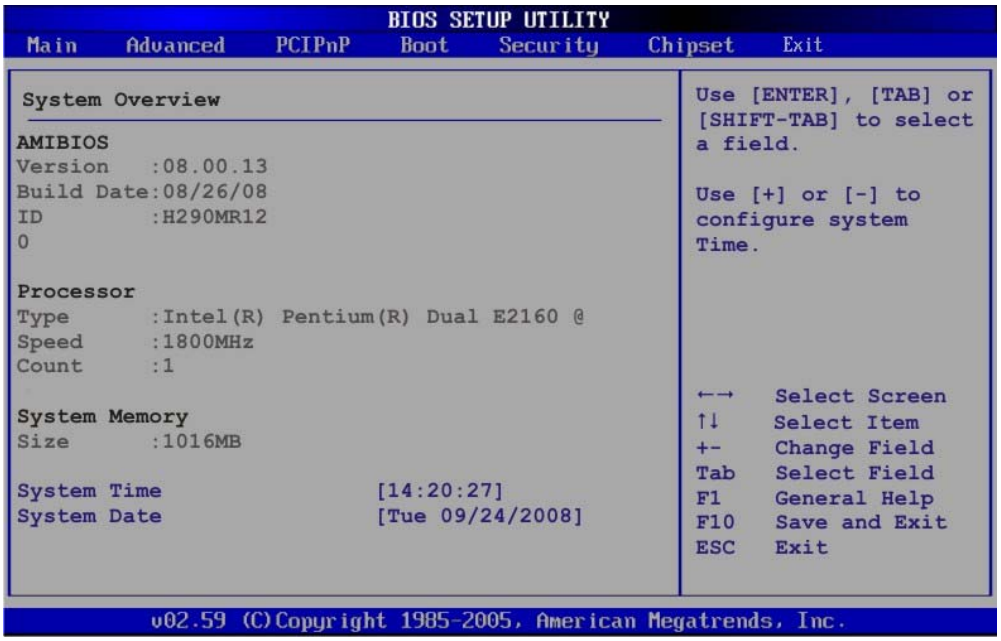
The **menu bar** on top of the BIOS screen has the following main items:

- **Main** Changes the basic system configuration.
- **Advanced** Changes the advanced system settings.
- **PCIPnP** Changes the advanced PCI/PnP Settings
- **Boot** Changes the system boot configuration.
- **Security** Sets User and Supervisor Passwords.
- **Chipset** Changes the chipset settings.
- **Exit** Selects exit options and loads default settings

The following sections completely describe the configuration options found in the menu items at the top of the BIOS screen and listed above.

6.2 Main

The Main BIOS menu (**BIOS Menu 1**) appears when the BIOS Setup program is entered. The Main menu gives an overview of the basic system information.



BIOS Menu 1: Main

➔ System Overview

The **System Overview** lists a brief summary of different system components. The fields in **System Overview** cannot be changed. The items shown in the system overview include:

- **AMI BIOS**: Displays auto-detected BIOS information
  - **Version**: Current BIOS version
  - **Build Date**: Date the current BIOS version was made
  - **ID**: Installed BIOS ID
- **Processor**: Displays auto-detected CPU specifications
  - **Type**: Names the currently installed processor
  - **Speed**: Lists the processor speed
  - **Count**: The number of CPUs on the motherboard
- **System Memory**: Displays the auto-detected system memory.
  - **Size**: Lists memory size

The System Overview field also has two user configurable fields:

➔ **System Time [xx:xx:xx]**

Use the **System Time** option to set the system time. Manually enter the hours, minutes and seconds.

➔ **System Date [xx/xx/xx]**

Use the **System Date** option to set the system date. Manually enter the day, month and year.

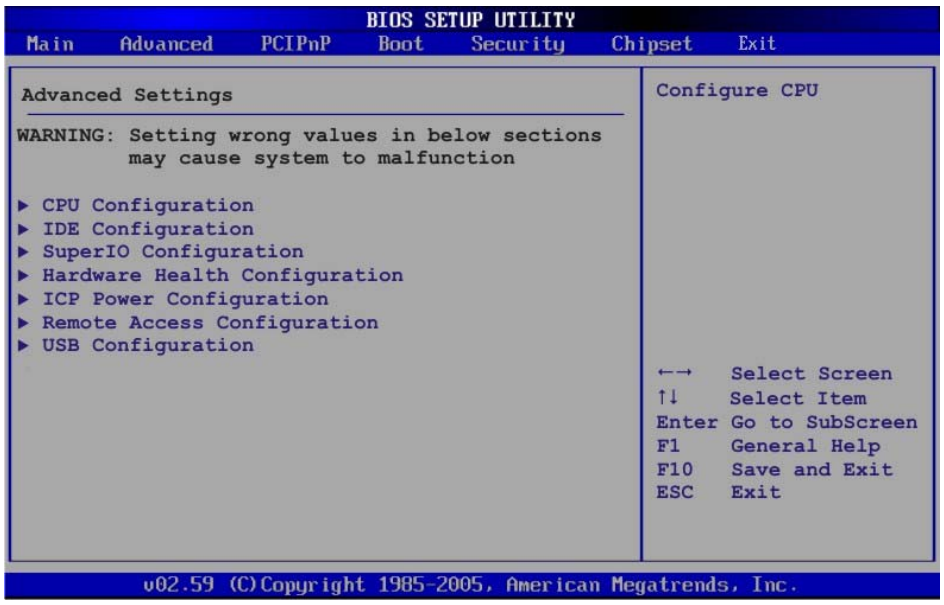
6.3 Advanced

Use the **Advanced** menu to configure the CPU and peripheral devices through the following sub-menus:

WARNING:

Setting the wrong values in the sections below may cause the system to malfunction. Make sure that the settings made are compatible with the hardware.

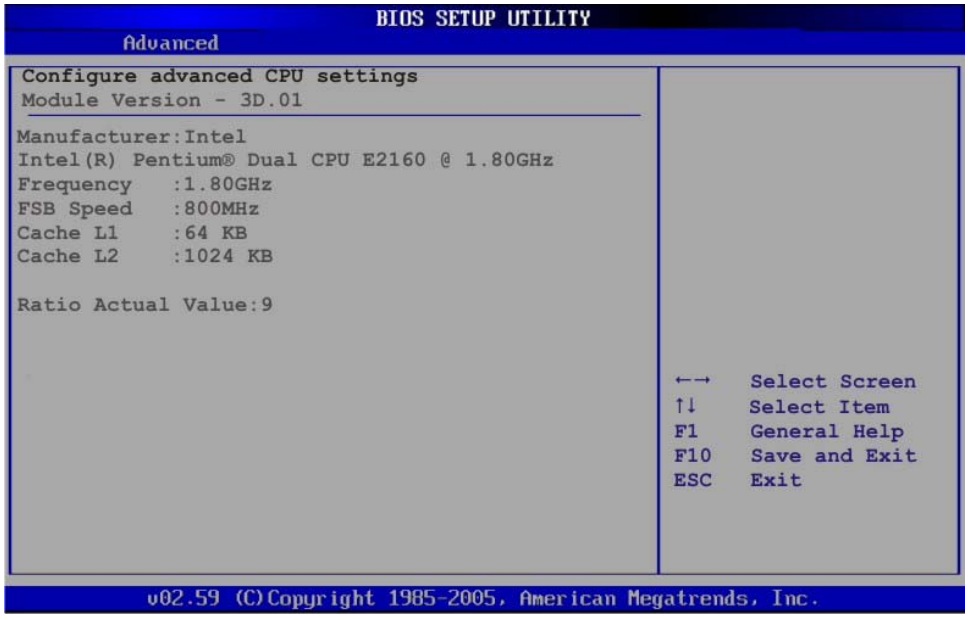
- **CPU Configuration** (see **Section 6.3.1**)
- **IDE Configuration** (see **Section 6.3.2**)
- **SuperIO Configuration** (see **Section 6.3.3**)
- **Hardware Health Configuration** (see **Section 6.3.4**)
- **IC Power Configuration** (see **Section 6.3.5**)
- **Remote Access Configuration** (see **Section 6.3.6**)
- **USB Configuration** (see **Section 6.3.7**)



BIOS Menu 2: Advanced

6.3.1 CPU Configuration

Use the CPU Configuration menu (**BIOS Menu 3**) to view detailed CPU specifications and configure the CPU.



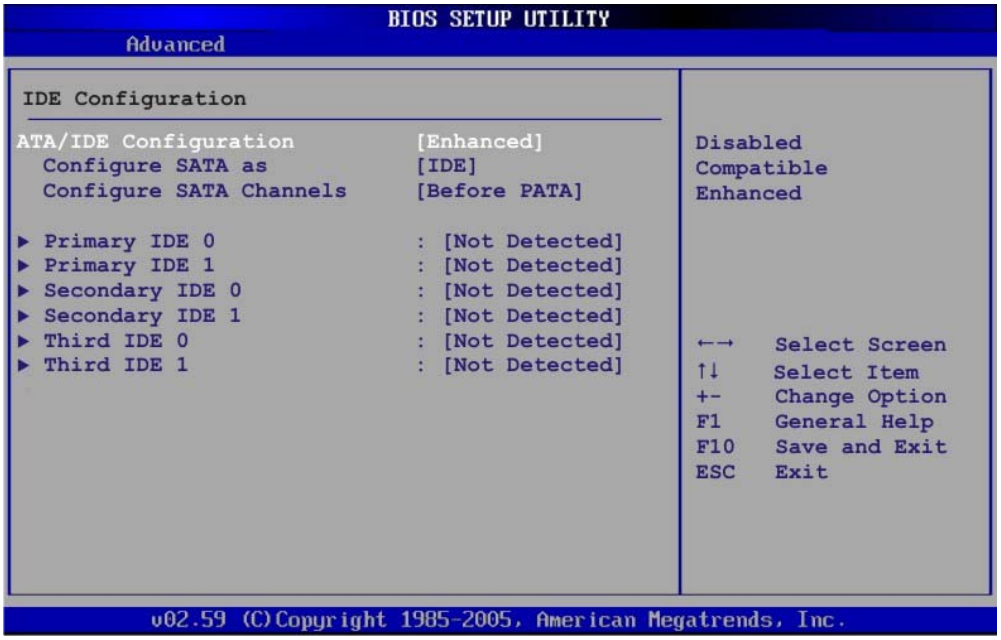
BIOS Menu 3: CPU Configuration

The CPU Configuration menu (**BIOS Menu 3**) lists the following CPU details:

- **Manufacturer**: Lists the name of the CPU manufacturer
- **Brand String**: Lists the brand name of the CPU being used
- **Frequency**: Lists the CPU processing speed
- **FSB Speed**: Lists the FSB speed
- **Cache L1**: Lists the CPU L1 cache size
- **Cache L2**: Lists the CPU L2 cache size

6.3.2 IDE Configuration

Use the **IDE Configuration** menu (**BIOS Menu 4**) to change and/or set the configuration of the IDE devices installed in the system.


BIOS SETUP UTILITY
Advanced
IDE Configuration
ATA/IDE Configuration [Enhanced]
Configure SATA as [IDE]
Configure SATA Channels [Before PATA]
▶ Primary IDE 0 : [Not Detected]
▶ Primary IDE 1 : [Not Detected]
▶ Secondary IDE 0 : [Not Detected]
▶ Secondary IDE 1 : [Not Detected]
▶ Third IDE 0 : [Not Detected]
▶ Third IDE 1 : [Not Detected]
Disabled
Compatible
Enhanced
←→ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 4: IDE Configuration

➔ **ATA/IDE Configurations [Compatible]**

Use the **ATA/IDE Configurations** option to configure the ATA/IDE controller.

➔ **Disabled** Disables the on-board ATA/IDE controller.

➔ **Compatible** Configures the on-board ATA/IDE controller to be in

compatible mode. In this mode, a SATA channel will replace one of the IDE channels. This mode supports up to 4 storage devices.

➔ **Enhanced** **DEFAULT** Configures the on-board ATA/IDE controller to be in Enhanced mode. In this mode, IDE channels and SATA channels are separated. This mode supports up to 6 storage devices. Some legacy OS do not support this mode.

➔ **Configure SATA as [IDE]**

Use the **Configure SATA as** option to configure SATA devices as normal IDE devices.

➔ **IDE** **DEFAULT** Configures SATA devices as normal IDE device.

➔ **Configure SATA Channels [Behind PATA]**

Use the **Configure SATA Channels** option to determine how SATA channels and PATA channels are ordered.

➔ **Before PATA** Puts SATA channels before PATA channels.

➔ **Behind PATA** **DEFAULT** Puts SATA channels behind PATA channels.

➔ **IDE Master and IDE Slave**

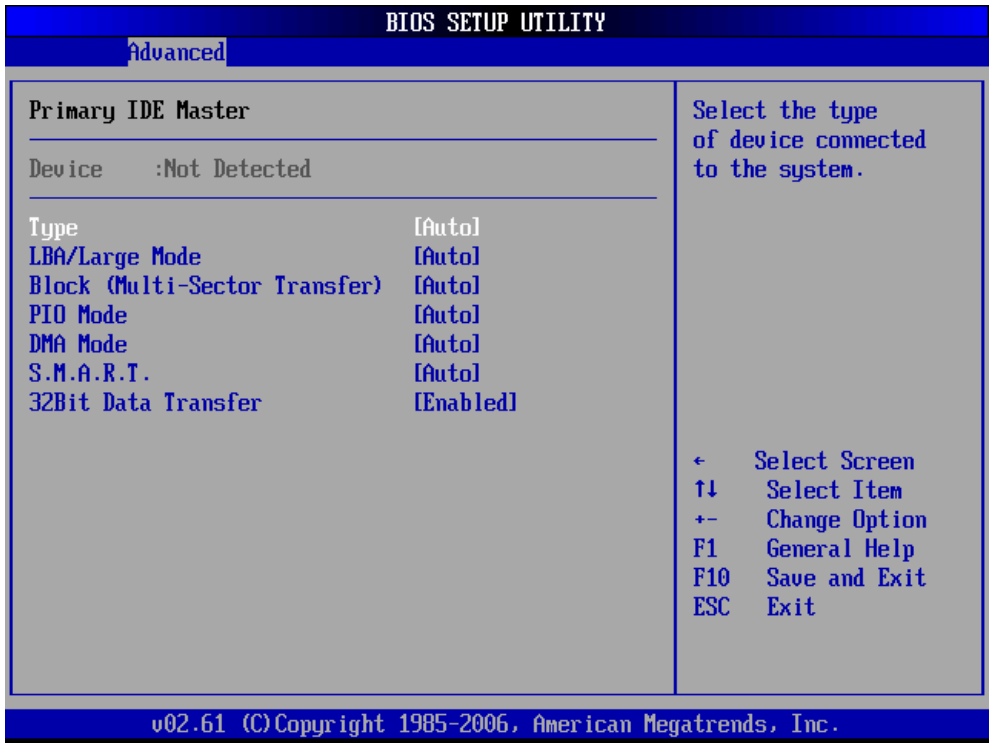
When entering setup, BIOS auto detects the presence of IDE devices. BIOS displays the status of the auto detected IDE devices. The following IDE devices are detected and are shown in the **IDE Configuration** menu:

- Primary IDE 0
- Primary IDE 1
- Secondary IDE 0
- Secondary IDE 1
- Third IDE 0
- Third IDE 1

The **IDE Configuration** menu (**BIOS Menu 4**) allows changes to the configurations for the IDE devices installed in the system. If an IDE device is detected, and one of the above listed four BIOS configuration options are selected, the IDE configuration options shown in **Section 6.3.2.1** appear.

6.3.2.1 IDE Master, IDE Slave

Use the **IDE Master** and **IDE Slave** configuration menu to view both primary and secondary IDE device details and configure the IDE devices connected to the system.



BIOS Menu 5: IDE Master and IDE Slave Configuration

➔ **Auto-Detected Drive Parameters**

The "grayed-out" items in the left frame are IDE disk drive parameters automatically detected from the firmware of the selected IDE disk drive. The drive parameters are listed as follows:

- **Device**: Lists the device type (e.g. hard disk, CD-ROM etc.)
- **Type**: Indicates the type of devices a user can manually select

- **Vendor**: Lists the device manufacturer
- **Size**: List the storage capacity of the device.
- **LBA Mode**: Indicates whether the LBA (Logical Block Addressing) is a method of addressing data on a disk drive is supported or not.
- **Block Mode**: Block mode boosts IDE drive performance by increasing the amount of data transferred. Only 512 bytes of data can be transferred per interrupt if block mode is not used. Block mode allows transfers of up to 64 KB per interrupt.
- **PIO Mode**: Indicates the PIO mode of the installed device.
- **Async DMA**: Indicates the highest Asynchronous DMA Mode that is supported.
- **Ultra DMA**: Indicates the highest Synchronous DMA Mode that is supported.
- **S.M.A.R.T.**: Indicates whether or not the Self-Monitoring Analysis and Reporting Technology protocol is supported.
- **32Bit Data Transfer**: Enables 32-bit data transfer.

➔ **Type [Auto]**

Use the **Type** BIOS option select the type of device the AMIBIOS attempts to boot from after the Power-On Self-Test (POST) is complete.

➔ **Not Installed**		BIOS is prevented from searching for an IDE disk drive on the specified channel.
➔ **Auto**	**DEFAULT**	The BIOS auto detects the IDE disk drive type attached to the specified channel. This setting should be used if an IDE hard disk drive is attached to the specified channel.
➔ **CD/DVD**		The CD/DVD option specifies that an IDE CD-ROM drive is attached to the specified IDE channel. The BIOS does not attempt to search for other types of IDE disk drives on the specified channel.
➔ **ARMD**		This option specifies an ATAPI Removable Media Device. These include, but are not limited to:

➔ **ZIP**

➔ **LS-120**

➔ **LBA/Large Mode [Auto]**

Use the **LBA/Large Mode** option to disable or enable BIOS to auto detects LBA (Logical Block Addressing). LBA is a method of addressing data on a disk drive. In LBA mode, the maximum drive capacity is 137 GB.

➔ **Disabled** BIOS is prevented from using the LBA mode control on the specified channel.

➔ **Auto** **DEFAULT** BIOS auto detects the LBA mode control on the specified channel.

➔ **Block (Multi Sector Transfer) [Auto]**

Use the **Block (Multi Sector Transfer)** to disable or enable BIOS to auto detect if the device supports multi-sector transfers.

➔ **Disabled** BIOS is prevented from using Multi-Sector Transfer on the specified channel. The data to and from the device occurs one sector at a time.

➔ **Auto** **DEFAULT** BIOS auto detects Multi-Sector Transfer support on the drive on the specified channel. If supported the data transfer to and from the device occurs multiple sectors at a time.

➔ **PIO Mode [Auto]**

Use the **PIO Mode** option to select the IDE PIO (Programmable I/O) mode program timing cycles between the IDE drive and the programmable IDE controller. As the PIO mode increases, the cycle time decreases.

➔ **Auto** **DEFAULT** BIOS auto detects the PIO mode. Use this value if the IDE disk

drive support cannot be determined.

- ➔ **0** PIO mode 0 selected with a maximum transfer rate of 3.3MBps
- ➔ **1** PIO mode 1 selected with a maximum transfer rate of 5.2MBps
- ➔ **2** PIO mode 2 selected with a maximum transfer rate of 8.3MBps
- ➔ **3** PIO mode 3 selected with a maximum transfer rate of 11.1MBps
- ➔ **4** PIO mode 4 selected with a maximum transfer rate of 16.6MBps

(This setting generally works with all hard disk drives manufactured after 1999. For other disk drives, such as IDE CD-ROM drives, check the specifications of the drive.)

➔ **DMA Mode [Auto]**

Use the **DMA Mode** BIOS selection to adjust the DMA mode options.

- ➔ **Auto** **DEFAULT** BIOS auto detects the DMA mode. Use this value if the IDE disk drive support cannot be determined.
- ➔ **SWDMA0** Single Word DMA mode 0 selected with a maximum data transfer rate of 2.1MBps
- ➔ **SWDMA1** Single Word DMA mode 1 selected with a maximum data transfer rate of 4.2MBps
- ➔ **SWDMA2** Single Word DMA mode 2 selected with a maximum data transfer rate of 8.3MBps
- ➔ **MWDMA0** Multi Word DMA mode 0 selected with a maximum data transfer rate of 4.2MBps
- ➔ **MWDMA1** Multi Word DMA mode 1 selected with a maximum data transfer rate of 13.3MBps
- ➔ **MWDMA2** Multi Word DMA mode 2 selected with a maximum data transfer rate of 16.6MBps
- ➔ **UDMA1** Ultra DMA mode 0 selected with a maximum data transfer rate of 16.6MBps
- ➔ **UDMA1** Ultra DMA mode 1 selected with a maximum data transfer

rate of 25MBps

- ➔ **UDMA2** Ultra DMA mode 2 selected with a maximum data transfer rate of 33.3MBps
- ➔ **UDMA3** Ultra DMA mode 3 selected with a maximum data transfer rate of 44MBps (To use this mode, it is required that an 80-conductor ATA cable is used.)
- ➔ **UDMA4** Ultra DMA mode 4 selected with a maximum data transfer rate of 66.6MBps (To use this mode, it is required that an 80-conductor ATA cable is used.)
- ➔ **UDMA5** Ultra DMA mode 5 selected with a maximum data transfer rate of 99.9MBps (To use this mode, it is required that an 80-conductor ATA cable is used.)

➔ **S.M.A.R.T [Auto]**

Use the **S.M.A.R.T** option to auto-detect, disable or enable Self-Monitoring Analysis and Reporting Technology (SMART) on the drive on the specified channel. **S.M.A.R.T** predicts impending drive failures. The **S.M.A.R.T** BIOS option enables or disables this function.

- ➔ **Auto** **DEFAULT** BIOS auto detects HDD SMART support.
- ➔ **Disabled** Prevents BIOS from using the HDD SMART feature.
- ➔ **Enabled** Allows BIOS to use the HDD SMART feature

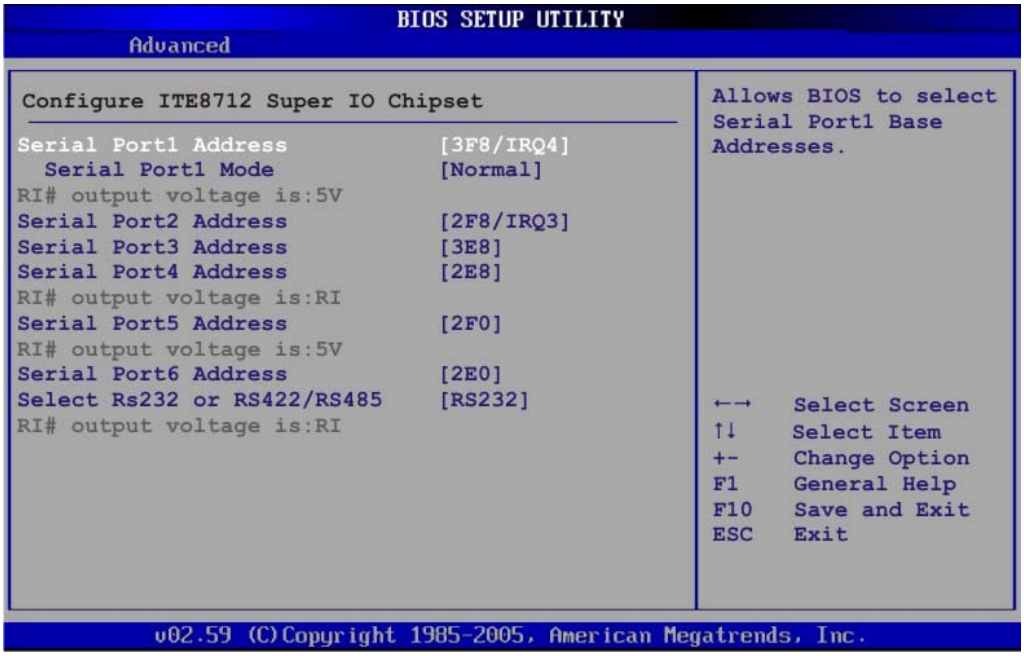
➔ **32Bit Data Transfer [Enabled]**

Use the **32Bit Data Transfer** BIOS option to enables or disable 32-bit data transfers.

- ➔ **Disabled** Prevents the BIOS from using 32-bit data transfers.
- ➔ **Enabled** **DEFAULT** Allows BIOS to use 32-bit data transfers on supported hard disk drives.

6.3.3 Super IO Configuration

Use the **Super IO Configuration** menu (**BIOS Menu 6**) to set or change the configurations for the FDD controllers, parallel ports and serial ports.



BIOS Menu 6: Super IO Configuration

➔ **Serial Port1 Address [3F8/IRQ4]**

Use the **Serial Port1 Address** option to select the Serial Port 1 base address.

➔ **Disabled**		No base address is assigned to Serial Port 1
➔ **3F8/IRQ4**	**DEFAULT**	Serial Port 1 I/O port address is 3F8 and the interrupt address is IRQ4
➔ **3E8/IRQ4**		Serial Port 1 I/O port address is 3E8 and the interrupt address is IRQ4
➔ **2E8/IRQ3**		Serial Port 1 I/O port address is 2E8 and the interrupt address is IRQ3

➔ **Serial Port1 Mode [Normal]**

Use the **Serial Port1 Mode** option to select the transmitting and receiving mode for the first serial port.

➔ **Normal**	**DEFAULT**	Serial Port 1 mode is normal
➔ **IrDA**		Serial Port 1 mode is IrDA
➔ **ASK IR**		Serial Port 1 mode is ASK IR

➔ **Serial Port2 Address [2F8/IRQ3]**

Use the **Serial Port2 Address** option to select the Serial Port 2 base address.

➔ **Disabled**		No base address is assigned to Serial Port 2
➔ **2F8/IRQ3**	**DEFAULT**	Serial Port 2 I/O port address is 3F8 and the interrupt address is IRQ3
➔ **3E8/IRQ4**		Serial Port 2 I/O port address is 3E8 and the interrupt address is IRQ4
➔ **2E8/IRQ3**		Serial Port 2 I/O port address is 2E8 and the interrupt address is IRQ3

➔ **Serial Port3 Address [3E8]**

Use the **Serial Port3 Address** option to select the base addresses for serial port 3

➔ **Disabled**		No base address is assigned to serial port 3
➔ **3E8**	**DEFAULT**	Serial port 3 I/O port address is 3E8
➔ **2E8**		Serial port 3 I/O port address is 2E8
➔ **2F0**		Serial port 3 I/O port address is 2F0
➔ **2E0**		Serial port 3 I/O port address is 2E0

➔ **Serial Port4 Address [2E8]**

Use the **Serial Port4 IRQ** option to select the interrupt address for serial port 4.

- ➔ **Disabled** No base address is assigned to serial port 3
- ➔ **3E8** Serial port 4 I/O port address is 3E8
- ➔ **2E8** **DEFAULT** Serial port 4 I/O port address is 2E8
- ➔ **2F0** Serial port 4 I/O port address is 2F0
- ➔ **2E0** Serial port 4 I/O port address is 2E0

➔ **Serial Port5 Address [2F0]**

Use the **Serial Port5 IRQ** option to select the interrupt address for serial port 5.

- ➔ **Disabled** No base address is assigned to serial port 5
- ➔ **3E8** Serial port 5 I/O port address is 3E8
- ➔ **2E8** Serial port 5 I/O port address is 2E8
- ➔ **2F0** **DEFAULT** Serial port 5 I/O port address is 2F0
- ➔ **2E0** Serial port 5 I/O port address is 2E0

➔ **Serial Port6 Address [2E0]**

Use the **Serial Port6 IRQ** option to select the interrupt address for serial port 6.

- ➔ **Disabled** No base address is assigned to serial port 6
- ➔ **3E8** Serial port 6 I/O port address is 3E8
- ➔ **2E8** Serial port 6 I/O port address is 2E8
- ➔ **2F0** Serial port 6I/O port address is 2F0
- ➔ **2E0** **DEFAULT** Serial port 6 I/O port address is 2E0

➔ **Select RS232 or RS485/RS422 [RS/232]**

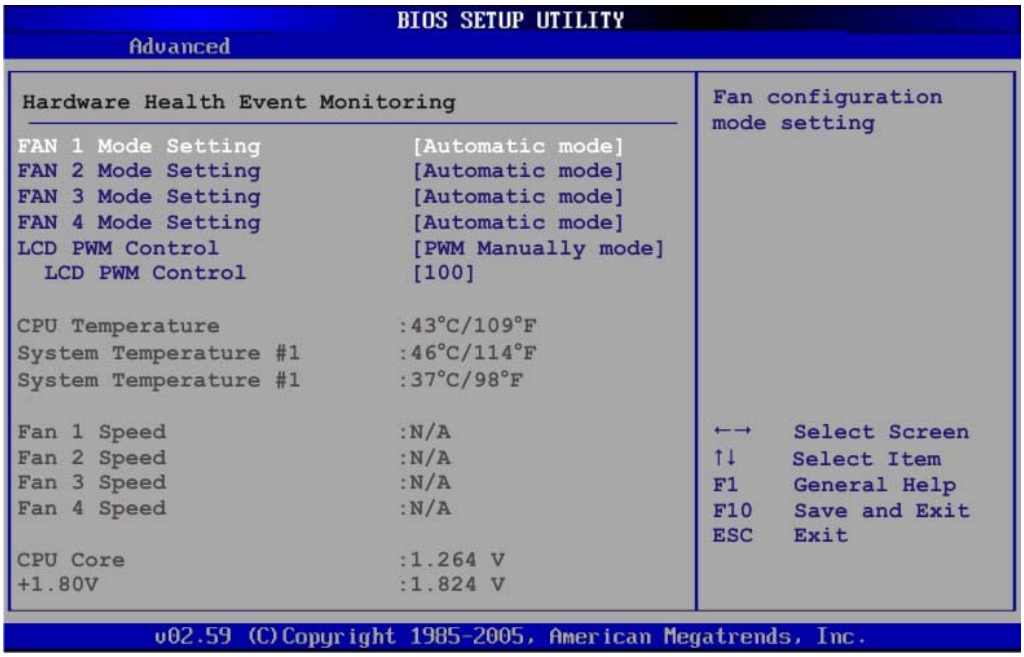
Use the **Select RS232 or RS485/RS422** option to select the Serial Port 2 signaling mode.

- ➔ **RS232** **DEFAULT** Serial Port 2 signaling mode is RS-232
- ➔ **RS422/** Serial Port 2 signaling mode is RS-422 or RS-485

RS485

6.3.4 Hardware Health Configuration

The **Hardware Health Configuration** menu (**BIOS Menu 7**) shows the operating temperature, fan speeds and system voltages.


BIOS SETUP UTILITY
Advanced
Hardware Health Event Monitoring
FAN 1 Mode Setting [Automatic mode]
FAN 2 Mode Setting [Automatic mode]
FAN 3 Mode Setting [Automatic mode]
FAN 4 Mode Setting [Automatic mode]
LCD PWM Control [PWM Manually mode]
LCD PWM Control [100]
CPU Temperature :43°C/109°F
System Temperature #1 :46°C/114°F
System Temperature #1 :37°C/98°F
Fan 1 Speed :N/A
Fan 2 Speed :N/A
Fan 3 Speed :N/A
Fan 4 Speed :N/A
CPU Core :1.264 V
+1.80V :1.824 V
Fan configuration mode setting
←→ Select Screen
↑↓ Select Item
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 7: Hardware Health Configuration

➔ **FAN n Mode Setting [Automatic Mode]**

Use the **FAN n Mode Setting** option to configure the second fan.

➔ **Full On Mode**		Fan is on all the time
➔ **Automatic mode**	**DEFAULT**	Fan is off when the temperature is low enough. Parameters must be set by the user.
➔ **PWM Manual mode**		Pulse width modulation set manually

When the **FAN n Mode Setting** option is in the **PWM Manual Mode**, the following parameters can be set.

- Fan PWM control

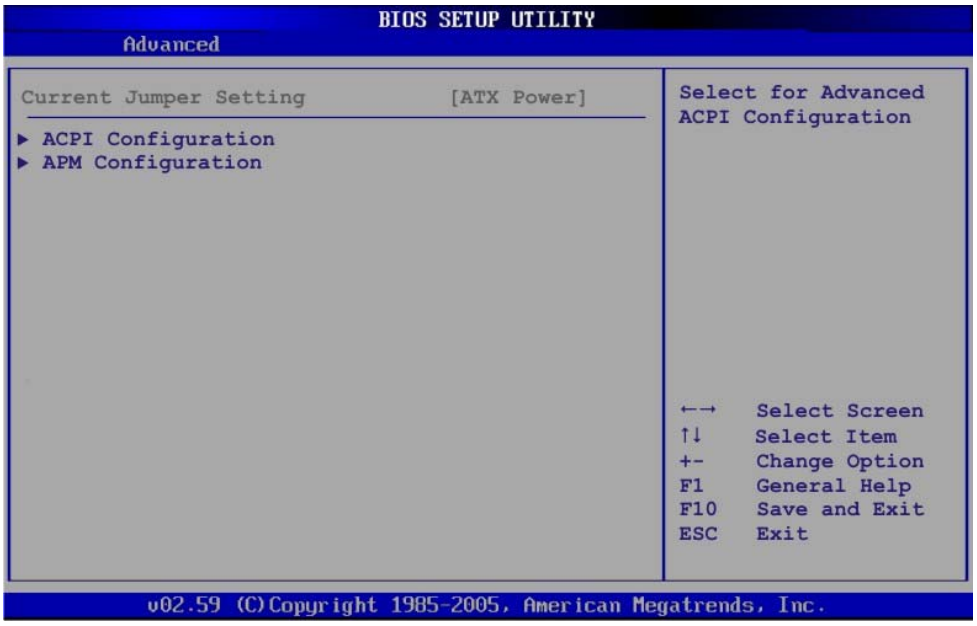
➔ **Monitored Parameters**

The following system parameters and values are shown. The system parameters that are monitored are:

- **System Temperatures**: The following system temperatures are monitored
  - CPU Temperature
  - System Temperature #1
  - System Temperature #2
- **Fan Speeds**: The following fan speed are monitored
  - Fan 1
  - Fan 2
  - Fan 3
  - Fan 4
- **Voltages**: The following system voltages are monitored
  - CPU Core
  - 1.80V
  - 3.30V
  - 5V
  - VBAT

6.3.5 Power Configuration

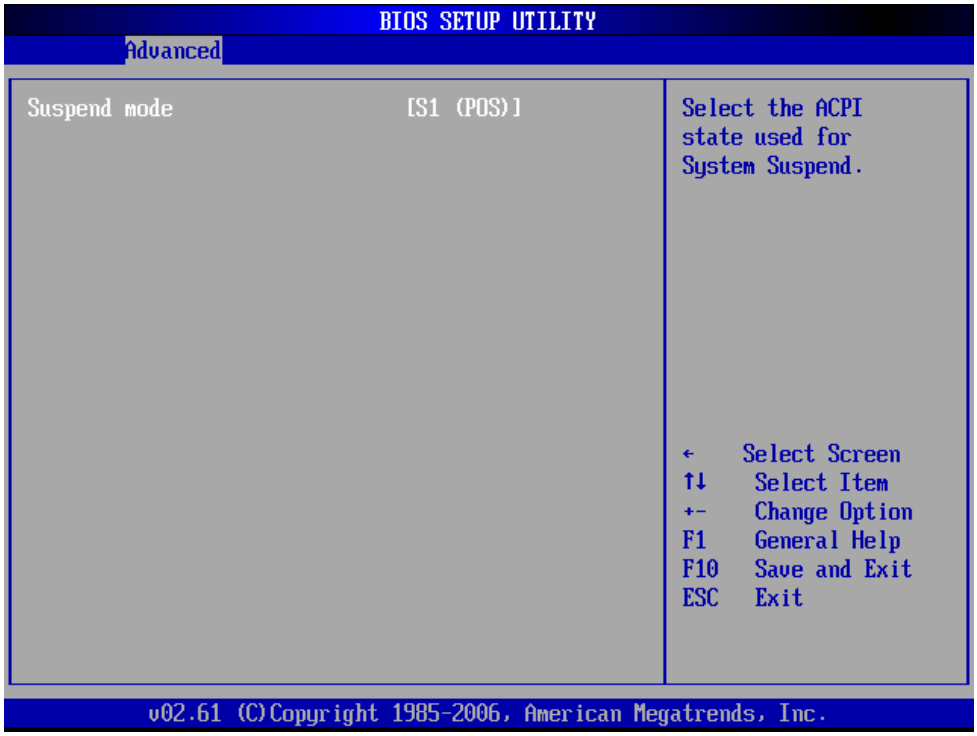
The **Power** menu configures the system in AT or ATX mode.



BIOS Menu 8: Power Menu

6.3.5.1 ACPI Configuration

The **ACPI Configuration** menu (**BIOS Menu 9**) configures the Advanced Configuration and Power Interface (ACPI) and Power Management (APM) options.



BIOS Menu 9: ACPI Configuration

➔ **Suspend Mode [S1(POS)]**

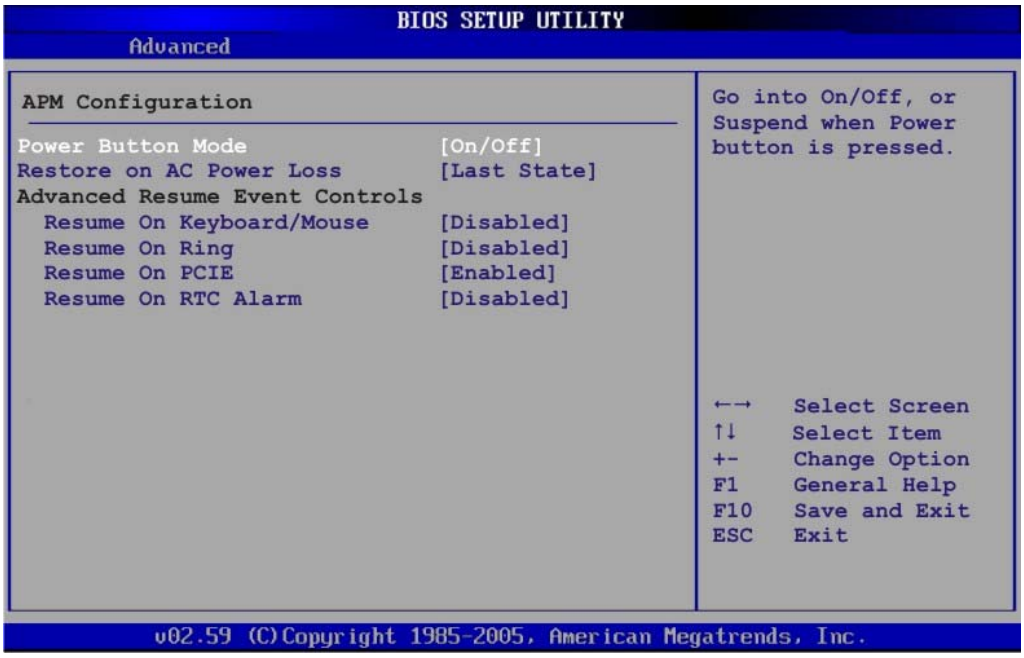
Use the **Suspend Mode** option to specify the sleep state the system enters when it is not being used.

➔ **S1 (POS)** **DEFAULT** System appears off. The CPU is stopped; RAM is refreshed; the system is running in a low power mode.

➔ **S3 (STR)** System appears off. The CPU has no power; RAM is in slow refresh; the power supply is in a reduced power mode.

6.3.5.2 APM Configuration

The APM Configuration menu (**BIOS Menu 10**) allows the advanced power management options to be configured.


BIOS SETUP UTILITY
Advanced
APM Configuration
Power Button Mode [On/Off]
Restore on AC Power Loss [Last State]
Advanced Resume Event Controls
Resume On Keyboard/Mouse [Disabled]
Resume On Ring [Disabled]
Resume On PCIE [Enabled]
Resume On RTC Alarm [Disabled]
Go into On/Off, or Suspend when Power button is pressed.
←→ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 10:Advanced Power Management Configuration

➔ **Power Button Mode [On/Off]**

Use the **Power Button Mode** BIOS to specify how the power button functions.

➔ **On/Off** **DEFAULT** When the power button is pressed the system is either turned on or off

➔ **Suspend** When the power button is pressed the system goes into suspend mode

➔ **Restore on AC Power Loss [Last State]**

Use the **Restore on AC Power Loss** BIOS option to specify what state the system returns to if there is a sudden loss of power to the system.

➔ **Power Off** The system remains turned off

➔ **Power On** The system turns on

➔ **Last State** **DEFAULT** The system returns to its previous state. If it was on, it turns itself on. If it was off, it remains off.

➔ **Resume on Keyboard/Mouse [Disabled]**

Use the **Resume on Keyboard/Mouse** BIOS option to enable activity on the keyboard or mouse to rouse the system from a suspend or standby state.

➔ **Disabled**	**DEFAULT**	Wake event not generated by activity on the keyboard or mouse
➔ **Resume On Keyboard**		Wake event not generated by activity on the keyboard
➔ **Resume On Mouse**		Wake event not generated by activity on the mouse
➔ **Enabled**		Wake event generated by activity on the keyboard or mouse

➔ **Resume on Ring [Disabled]**

Use the **Resume on Ring** BIOS option to enable activity on the RI (ring in) modem line to rouse the system from a suspend or standby state. That is, the system will be roused by an incoming call on a modem.

➔ **Disabled**	**DEFAULT**	Wake event not generated by an incoming call
➔ **Enabled**		Wake event generated by an incoming call

➔ **Resume on PCIE [Enabled]**

The **Resume on PCIE** BIOS option specifies if the system is roused from a suspended or standby state when there is activity on the PCI-Express bus.

➔ **Disabled**		Wake event not generated by PCI-Express activity
➔ **Enabled**	**DEFAULT**	Wake event generated by PCI-Express activity

➔ **Resume On RTC Alarm [Disabled]**

Use the **Resume On RTC Alarm** option to specify the time the system should be roused from a suspended state.

➔ **Disabled** **DEFAULT** The real time clock (RTC) cannot generate a wake event

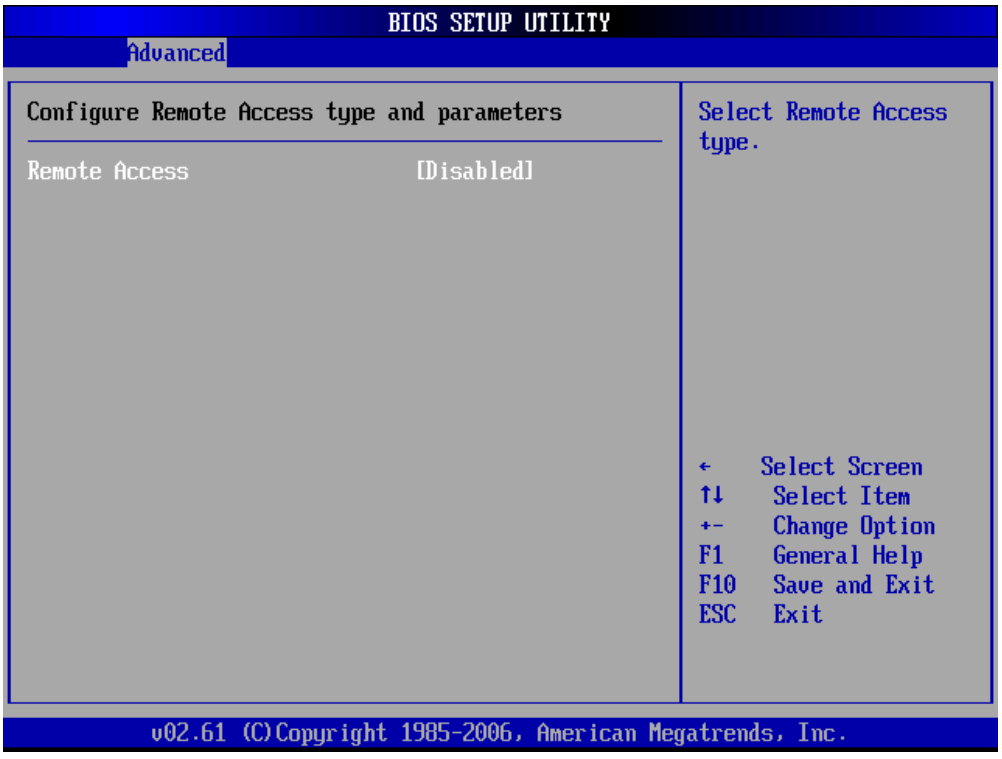
➔ **Enabled** If selected, the following appears with values that can be selected:

- ➔ **RTC Alarm Date (Days)**
- ➔ **System Time**

After setting the alarm, the computer turns itself on from a suspend state when the alarm goes off.

6.3.6 Remote Access Configuration

Use the **Remote Access Configuration** menu (**BIOS Menu 11**) to configure remote access parameters. The **Remote Access Configuration** is an AMIBIOS feature and allows a remote host running a terminal program to display and configure the BIOS settings.



BIOS Menu 11: Remote Access Configuration [Advanced]

➔ **Remote Access [Disabled]**

Use the **Remote Access** option to enable or disable access to the remote functionalities of the system.

➔ **Disabled**	**DEFAULT**	Remote access is disabled.
➔ **Enabled**		Remote access configuration options shown below appear:

- ➔ **Serial Port Number**
- ➔ **Serial Port Mode**
- ➔ **Redirection after BIOS POST**
- ➔ **Terminal Type**

These configuration options are discussed below.

➔ **Serial Port Number [COM1]**

Use the **Serial Port Number** option to select the serial port used for remote access.

➔ **COM1**	**DEFAULT**	System is remotely accessed through COM1
➔ **COM4**		System is remotely accessed through COM4
➔ **COM5**		System is remotely accessed through COM5
➔ **COM6**		System is remotely accessed through COM6

NOTE: Make sure the selected COM port is enabled through the Super I/O configuration menu.

➔ **Base Address, IRQ [3F8h,4]**

The **Base Address, IRQ** option cannot be configured and only shows the interrupt address of the serial port listed above.

➔ **Serial Port Mode [115200 8,n,1]**

Use the **Serial Port Mode** option to select baud rate through which the console redirection is made. The following configuration options are available

- 115200 8,n,1 **DEFAULT**
- 57600 8,n,1
- 38400 8,n,1
- 19200 8,n,1
- 09600 8,n,1

NOTE:

Identical baud rate setting musts be set on the host (a management computer running a terminal software) and the slave

➔ **Redirection After BIOS POST [Always]**

Use the **Redirection After BIOS POST** option to specify when console redirection should occur.

➔ **Disabled**		The console is not redirected after POST
➔ **Boot Loader**		Redirection is active during POST and during Boot Loader
➔ **Always**	**DEFAULT**	Redirection is always active (Some OSes may not work if set to Always)

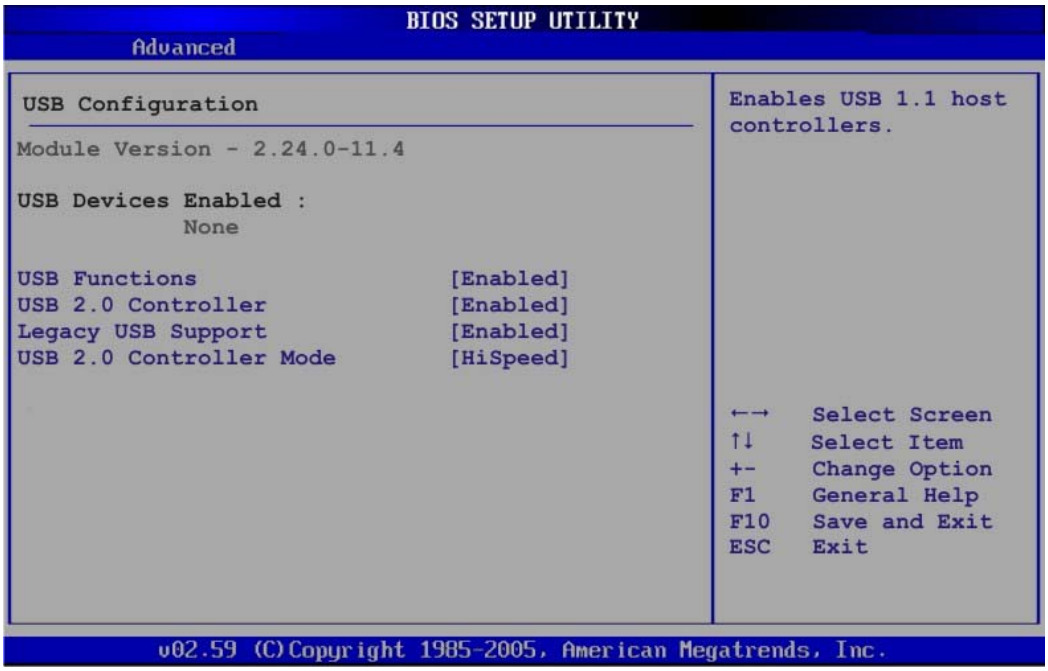
➔ **Terminal Type [ANSI]**

Use the **Terminal Type** BIOS option to specify the remote terminal type.

➔ **ANSI**	**DEFAULT**	The target terminal type is ANSI
➔ **VT100**		The target terminal type is VT100
➔ **VT-UTF8**		The target terminal type is VT-UTF8

6.3.7 USB Configuration

Use the **USB Configuration** menu (**BIOS Menu 12**) to read USB configuration information and configure the USB settings.



BIOS Menu 12: USB Configuration

➔ **USB Function [Enabled]**

Use the **USB Function** BIOS option to enable or disable a specified number of USB ports.

- ➔ **Disabled** USB function support disabled
- ➔ **Enabled** **DEFAULT** USB function support enabled

➔ **USB 2.0 Controller [Enabled]**

The **USB 2.0 Controller** BIOS option enables or disables the USB 2.0 controller

- ➔ **Enabled** **DEFAULT** USB function enabled
- ➔ **Disabled** USB EHCI function disabled

➔ **Legacy USB Support [Enabled]**

Use the **Legacy USB Support** BIOS option to enable USB mouse and USB keyboard support.

Normally if this option is not enabled, any attached USB mouse or USB keyboard does not become available until a USB compatible operating system is fully booted with all USB drivers loaded. When this option is enabled, any attached USB mouse or USB keyboard can control the system even when there is no USB driver loaded onto the system.

➔ **Disabled**		Legacy USB support disabled
➔ **Enabled**	**DEFAULT**	Legacy USB support enabled
➔ **Auto**		Legacy USB support disabled if no USB devices are connected

➔ **USB2.0 Controller Mode [HiSpeed]**

Use the **USB2.0 Controller Mode** option to set the speed of the USB2.0 controller.

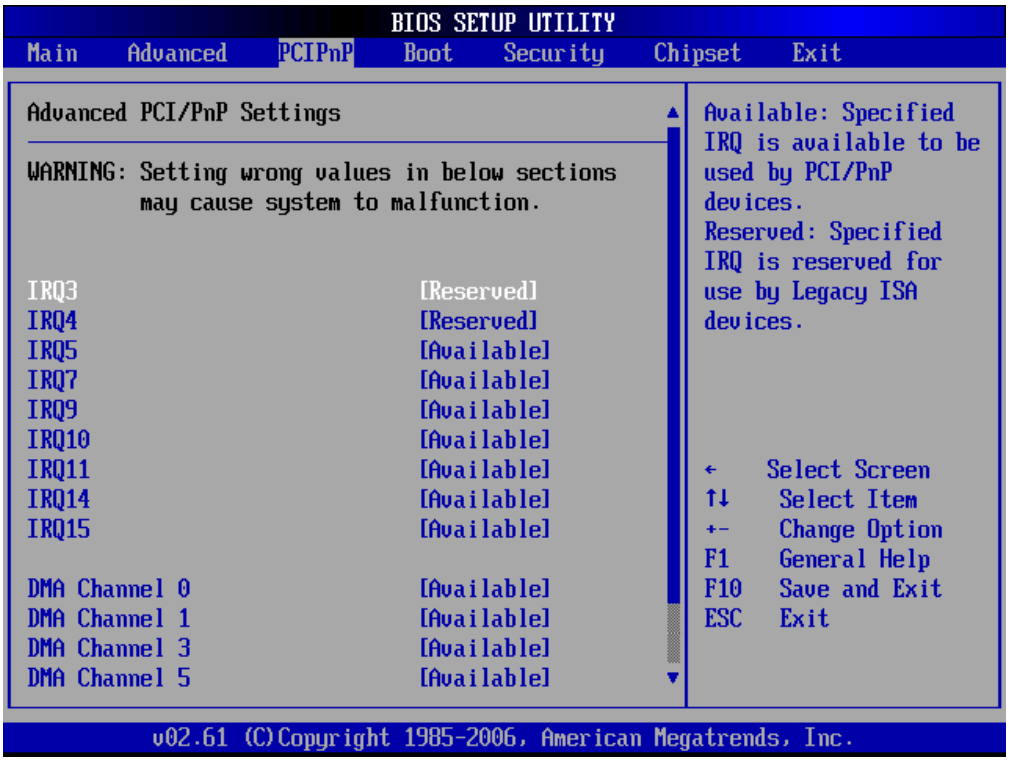
➔ **FullSpeed**		The controller is capable of operating at 12Mb/s
➔ **HiSpeed**	**DEFAULT**	The controller is capable of operating at 480Mb/s

6.4 PCI/PnP

Use the PCI/PnP menu (**BIOS Menu 13**) to configure advanced PCI and PnP settings.

WARNING:

Setting wrong values for the BIOS selections in the PCIPnP BIOS menu may cause the system to malfunction.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Advanced PCI/PnP Settings
WARNING: Setting wrong values in below sections may cause system to malfunction.
IRQ3 [Reserved]
IRQ4 [Reserved]
IRQ5 [Available]
IRQ7 [Available]
IRQ9 [Available]
IRQ10 [Available]
IRQ11 [Available]
IRQ14 [Available]
IRQ15 [Available]
DMA Channel 0 [Available]
DMA Channel 1 [Available]
DMA Channel 3 [Available]
DMA Channel 5 [Available]
Available: Specified IRQ is available to be used by PCI/PnP devices.
Reserved: Specified IRQ is reserved for use by Legacy ISA devices.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 13: PCI/PnP Configuration

➔ **IRQ# [Available]**

Use the **IRQ#** address to specify what IRQs can be assigned to a particular peripheral device.

➔ **Available** **DEFAULT** The specified IRQ is available to be used by PCI/PnP devices

➔ **Reserved** The specified IRQ is reserved for use by Legacy ISA devices

Available IRQ addresses are:

- IRQ3
- IRQ4
- IRQ5
- IRQ7
- IRQ9

- IRQ10
- IRQ 11
- IRQ 14
- IRQ 15

➔ **DMA Channel# [Available]**

Use the **DMA Channel#** option to assign a specific DMA channel to a particular PCI/PnP device.

➔ **Available**	**DEFAULT**	The specified DMA is available to be used by PCI/PnP devices
➔ **Reserved**		The specified DMA is reserved for use by Legacy ISA devices

Available DMA Channels are:

- DM Channel 0
- DM Channel 1
- DM Channel 3
- DM Channel 5
- DM Channel 6
- DM Channel 7

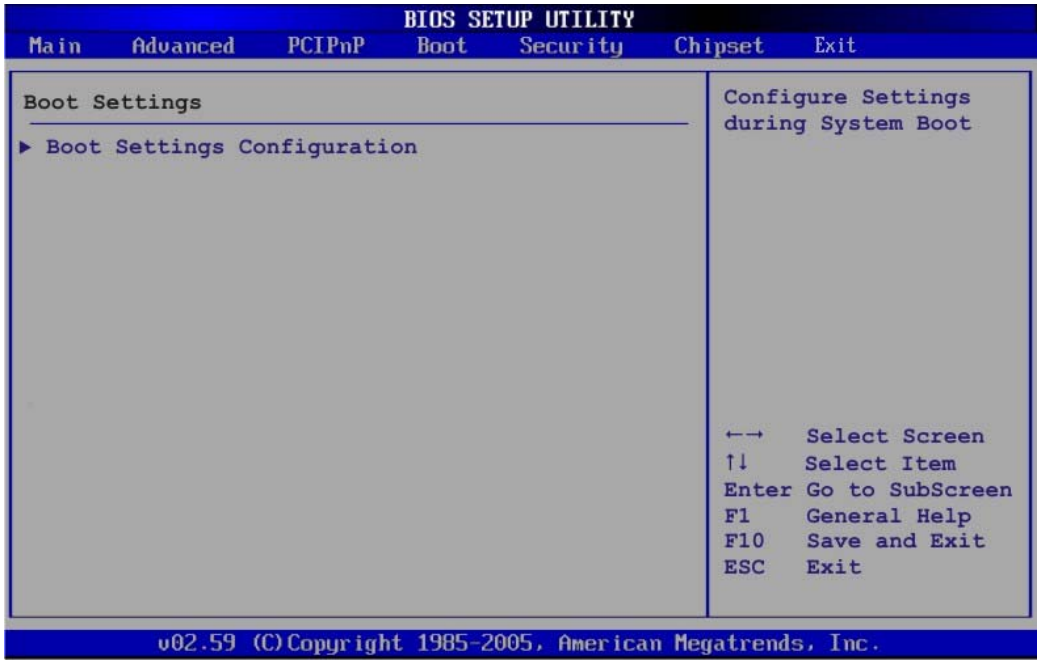
➔ **Reserved Memory Size [Disabled]**

Use the **Reserved Memory Size** BIOS option to specify the amount of memory that should be reserved for legacy ISA devices.

➔ **Disabled**	**DEFAULT**	No memory block reserved for legacy ISA devices
➔ **16K**		16KB reserved for legacy ISA devices
➔ **32K**		32KB reserved for legacy ISA devices
➔ **64K**		54KB reserved for legacy ISA devices

6.5 Boot

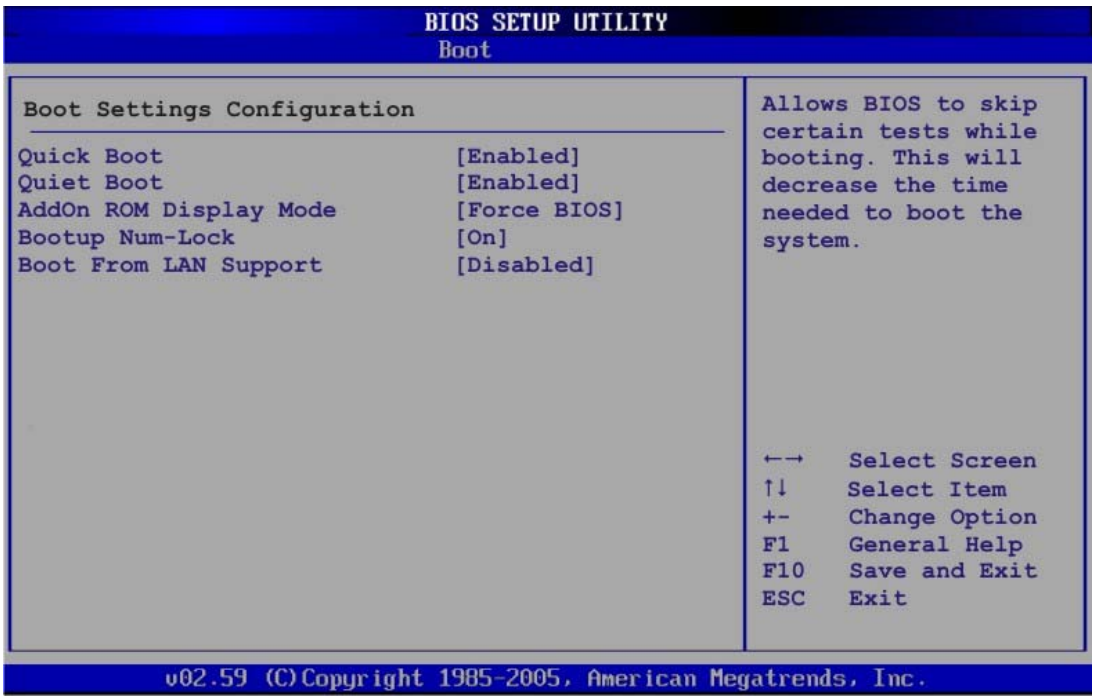
Use the Boot menu (**BIOS Menu 14**) to configure system boot options.



BIOS Menu 14: Boot

6.5.1 Boot Settings Configuration

Use the Boot Settings Configuration menu (**BIOS Menu 15**) to configure advanced system boot options.


BIOS SETUP UTILITY
Boot
Boot Settings Configuration
Quick Boot [Enabled]
Quiet Boot [Enabled]
AddOn ROM Display Mode [Force BIOS]
Bootup Num-Lock [On]
Boot From LAN Support [Disabled]
Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.
←→ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 15: Boot Settings Configuration

➔ **Quick Boot [Enabled]**

Use the **Quick Boot** BIOS option to make the computer speed up the boot process.

➔ **Disabled**		No POST procedures are skipped
➔ **Enabled**	**DEFAULT**	Some POST procedures are skipped to decrease the system boot time

➔ **Quiet Boot [Enabled]**

Use the **Quiet Boot** BIOS option to select the screen display when the system boots.

➔ **Disabled**		Normal POST messages displayed
➔ **Enabled**	**DEFAULT**	OEM Logo displayed instead of POST messages

➔ **AddOn ROM Display Mode [Force BIOS]**

The **AddOn ROM Display Mode** option allows add-on ROM (read-only memory) messages to be displayed.

➔ **Force BIOS**	**DEFAULT**	Allows the computer system to force a third party BIOS to display during system boot.
➔ **Keep Current**		Allows the computer system to display the information during system boot.

➔ **Bootup Num-Lock [Off]**

The **Bootup Num-Lock** BIOS option allows the Number Lock setting to be modified during boot up.

➔ **Off**	**DEFAULT**	Does not enable the keyboard Number Lock automatically. To use the 10-keys on the keyboard, press the Number Lock key located on the upper left-hand corner of the 10-key pad. The Number Lock LED on the keyboard lights up when the Number Lock is engaged.
➔ **On**		Allows the Number Lock on the keyboard to be enabled automatically when the computer system boots up. This allows the immediate use of the 10-key numeric keypad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard is lit.

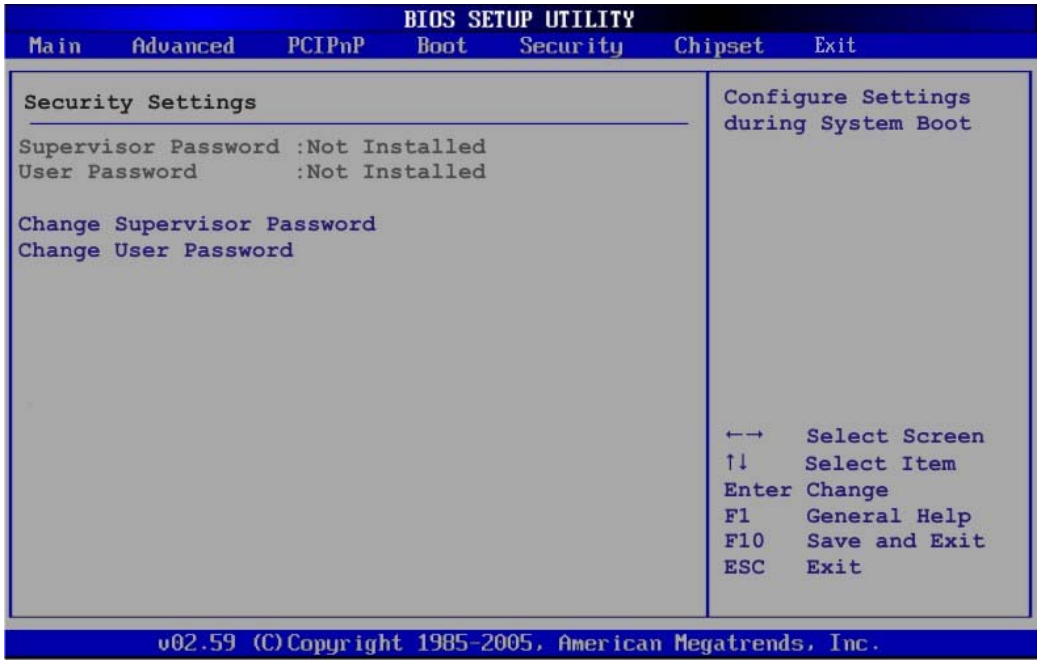
➔ **Boot From LAN Support [Disabled]**

Use the **BOOT From LAN Support** option to enable the system to be booted from a remote system.

➔ **Disabled**	**DEFAULT**	Cannot be booted from a remote system through the LAN
➔ **Enabled**		Can be booted from a remote system through the LAN

6.6 Security

Use the Security menu (**BIOS Menu 16**) to set system and user passwords.



BIOS Menu 16: Security

➔ **Change Supervisor Password**

Use the **Change Supervisor Password** to set or change a supervisor password. The default for this option is **Not Installed**. If a supervisor password must be installed, select this field and enter the password. After the password has been added, **Install** appears next to **Change Supervisor Password**.

➔ **Change User Password**

Use the **Change User Password** to set or change a user password. The default for this option is **Not Installed**. If a user password must be installed, select this field and enter the password. After the password has been added, **Install** appears next to **Change User Password**.

6.7 Chipset

Use the **Chipset** menu to access the NorthBridge and SouthBridge configuration menus

WARNING!

Setting the wrong values for the Chipset BIOS selections in the Chipset BIOS menu may cause the system to malfunction.

BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Advanced Chipset Settings
WARNING: Setting wrong values in below sections
may cause system to malfunction.
North Bridge Configuration
South Bridge Configuration
Configure North Bridge features.
← Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
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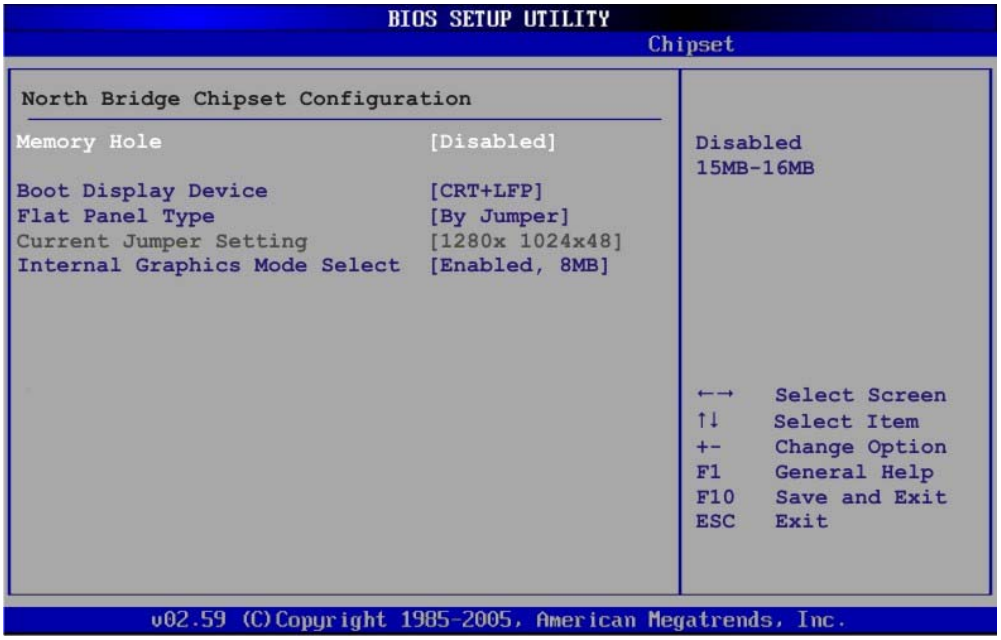
BIOS Menu 17: Chipset

6.7.1 NorthBridge Chipset Configuration

Use the NorthBridge Chipset Configuration menu (**BIOS Menu 18**) to check the northbridge chipset settings.



BIOS Menu 18:NorthBridge Chipset Configuration

➔ **Memory Hole [Disabled]**

The **Memory Hole** reserves the memory space between 15MB and 16MB for ISA expansion cards that require a specified area of memory to work properly. If an older ISA expansion card is used, please refer to the documentation that came with the card to see if it is necessary to reserve the space.

➔ **Disabled** **DEFAULT** Memory is not reserved for ISA expansion cards

➔ **Enabled** Memory is reserved for ISA expansion cards

➔ **Boot Display Device [CRT + LFP]**

The **Boot Display Device** BIOS option selects the display device the system uses when it boots. The available options are listed below:

- CRT
- DVI
- LFP
- CRT+DVI

- CRT + LFP **DEFAULT**

➔ **Flat Panel Type [By Jumper]**

Use the **Flat Panel Type** option to specify the flat panel PC type being used.

NOTE:

Please refer to the technical documents that came with the flat panel PC to ensure the correct settings are selected.

The following options are available:

- By Jumper **DEFAULT**
- 1024x768 x 18
- 1024x768 x 24
- 1280x1024 x 36
- 1280x1024 x 48

➔ **Internal Graphics Mode Select [Enable, 8MB]**

The **Internal Graphic Mode Select** option determines the amount of system memory that can be used by the Internal graphics device.

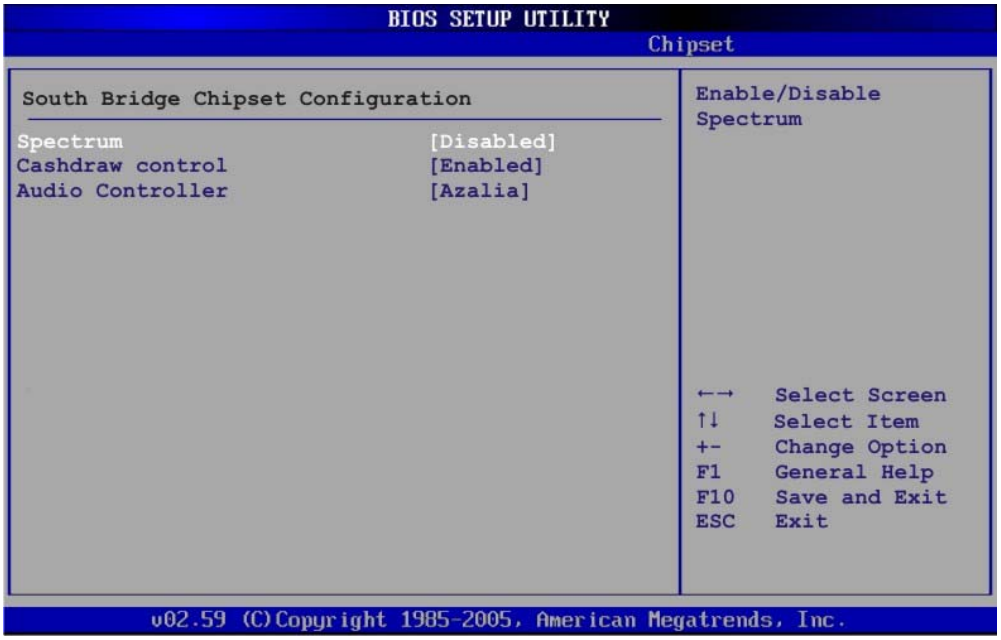
➔ **Disable**

➔ **Enable, 1MB** 1MB of memory used by internal graphics device

➔ **Enable, 8MB** **DEFAULT** 8MB of memory used by internal graphics device

6.7.2 SouthBridge Configuration

The SouthBridge Configuration menu (**BIOS Menu 19**) enables the Southbridge chipset to be configured.



BIOS Menu 19:SouthBridge Chipset Configuration

➔ **Spectrum [Disabled]**

Use the **Spectrum** option to reduce the EMI. Excess EMI is generated when the system clock generator pulses have extreme values. Spreading the pulse spectrum modulates changes in the extreme values from spikes to flat curves, thus reducing the EMI. This benefit may in some cases be outweighed by problems with timing-critical devices, such as a clock-sensitive SCSI device.

➔ **Disabled** **DEFAULT** EMI not reduced

➔ **Enabled** EMI reduced

➔ **Cashdraw Controller [Enabled]**

Use the **Cashdraw control** BIOS option to enable or disable the cash draw function on the system.

➔ **Disabled**		Cashdraw function disabled
➔ **Enabled**	**DEFAULT**	Cashdraw function enabled

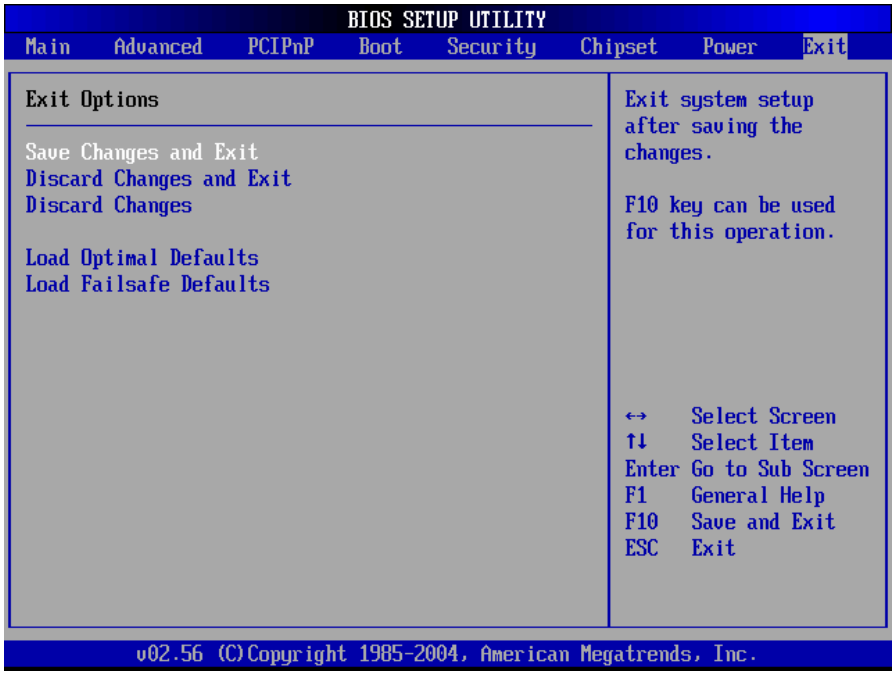
➔ **Audio Controller [Azalia]**

The **Audio Controller** option enables or disables the audio controller.

➔ **Azalia**	**DEFAULT**	The on-board High Definition Audio controller is enabled.
➔ **All Disabled**		The on-board audio controller is disabled.

6.8 Exit

Use the **Exit** menu (**BIOS Menu 20**) to load default BIOS values, optimal failsafe values and to save configuration changes.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Power Exit
Exit Options
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Load Optimal Defaults
Load Failsafe Defaults
Exit system setup after saving the changes.
F10 key can be used for this operation.
↔ Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 20:Exit

➔ **Save Changes and Exit**

Use the **Save Changes and Exit** option to save the changes made to the BIOS options and to exit the BIOS configuration setup program.

➔ **Discard Changes and Exit**

Use the **Discard Changes and Exit** option to exit the BIOS configuration setup program without saving the changes made to the system.

➔ **Discard Changes**

Use the **Discard Changes** option to discard the changes and remain in the BIOS configuration setup program.

➔ **Load Optimal Defaults**

Use the **Load Optimal Defaults** option to load the optimal default values for each of the parameters on the Setup menus. **F9 key can be used for this operation.**

➔ **Load Failsafe Defaults**

Use the **Load Failsafe Defaults** option to load failsafe default values for each of the parameters on the Setup menus. **F8 key can be used for this operation.**

Chapter

7

System Monitoring

7.1 IEI Intelligent System Management Module (iSMM)

7.1.1 What is iSMM

The iSMM system health supervision API uses sensor chips on the IEI motherboard in the AFL-317A to track system and CPU temperatures, voltages, cooling fan speeds, watchdog timer and the digital I/O setup status. The iSMM quickly captures and reports system conditions to ensure operators can prevent system damage.

Figure 7-1: iSMM

7.1.2 iSMM Features

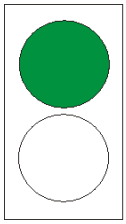
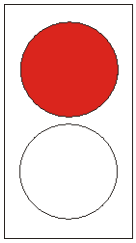
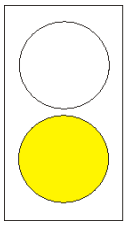
Some of the iSMM features are listed below:

- External and on-chip voltage feedback
- CPU and system temperature feedback
- Cooling fan speed feedback
- Cooling fan speed controlled by PWM/On-Off/Automatic mode
- Warning signals with beeper sound effects
- WDT test

- Programmable digital I/O
- System health configuration save and load

7.2 COM Port LED Indicators

The four COM port connectors each have two LED indicators. LED status indicators are described in below.

 Pin-9: RI	A green LED indicates the pin-9 signal on the COM port is a normal ring (RI) signal.
 Pin-9: 12 V	A red LED indicates the pin-9 signal on the COM port is 12 V power signal.
 Pin-9: 5 V	A yellow LED indicates the pin-9 signal on the COM port is 5 V power signal.

Appendix

A

System Specifications

A.1 Motherboard Specifications

The system comes with an IEI AFLMB-9454 motherboard. The detailed specifications for the motherboard are listed below.

Specification	AFLMB-9454
Northbridge	Intel® 945G
Southbridge	Intel® ICH7
Supported Processors	LGA 775 Intel® Pentium® Dual-Core processor
Front Side Bus Speeds	1066 MHz, 800 MHz or 533 MHz
Supported Memory	Two 240-pin 2.0 GB (max.) 667 MHz, 533 MHz or 400 MHz DDR2 SDRAM DIMM (system max. 4.0 GB)
System BIOS	4.0 MB AMI
Hard disk drives	Two IDE Four 3.0 Gbps SATA II
VGA	Integrated in the Intel® 945G
DVI Transmitter	Chrontel CH7308B-TF and Chrontel CH7307C-DEF
Touch Screen Controller	Atmel DMC9000
LAN	Broadcom BCM5787M
Expansion Options	One Mini-PCI One Mini-PCIe
Super I/O	ITE IT8712 Rev.K
Audio Codec	RealTek ALC655
Audio Amplifier	NXP TDA1517P
USB	Eight external USB 2.0 ports Two internal pin headers
WiFi	Cybernet AA02WCM6002R
RS-232	Fintek
Infrared	AFLIR-R10 (option) by super I/O

FAN connector	Four 3-pin CPU fan connectors Two 3-pin chassis fan connectors
Extra-Modules	Bluetooth Module (USB protocol BT-330C-V2)
	Webcam Module (USB protocol GD-6A54A)

A.2 Processor Specifications

The E2160 Intel® LGA775 Pentium® Dual-Core desktop processor specifications are given below.

Parameter	Specification
CPU Speed	1.8 GHz
Bus Speed	800 MHz
Bus/Core Ratio	9
L2 Cache Size	1 MB
L2 Cache Speed	1.8 GHz
Package Type	LGA775
Manufacturing Technology	65 nm
Core Stepping	L2
Thermal Design Power	65 W
Thermal Specification	61.4°C
VID Voltage Range	0.85 V – 1.5 V

A.3 Screen Specifications

An AUO M170EG01 is installed in the monitor. Specifications for the screen are shown below.

Size	17"
Model	M170EG01
Resolution (pixel)	SXGA (1280 x 1024)
Active Area (mm)	337.92 x 270.33
Pixel Pitch (mm)	0.264
Display Mode	Normally White

Number of Colors	16.7 M
View Angle (H/V)	160 / 160
Brightness (cd/m²)	300
Contrast Ratio	800:1
Response Time (ms) (at 25°C)	5
Power Consumption (W)	25.8
Interface	2ch LVDS
Supply Voltage (V)	5.0
Backlight	4 CCFL
Outline Dimensions (mm)	358.5 x 296.5 x 15.8
Weight (g)	2100

A.4 Touch Screen Specifications

A 5-wire resistive Panjit touch screen is installed in the monitor. Specifications for the touch screen are shown below.

SPECIFICATION	**PANJIT**
Model	PANJIT 1150508B
Type	Analog Resistive Type Touch Panel
Wire Type	5-wire
Viewing Area (mm)	232.1 x 308.2
Active Area (mm)	228.1 x 304.1
Total Transmission	78%
Maximum Voltage	DC 7V
Connector Type	FPC.
Operating Temperature	-10°C ~ 40°C
Operating Humidity	20% ~ 90% RH
Storage Temperature	-20°C ~ 70°C
Storage Humidity	20% ~ 90% RH
Dimensions	258x334x2.9

A.5 Power Supply Module

A Sinpro power supply unit is provided with the system. Specifications for the power supply unit are listed below.

Parameter	Minimum	Typical	Maximum
Operational			
Input Voltage (V)	90		264
Input Frequency (Hz)	47		63
Power Factor Correction	0.95		1
Output Power Range (W)	0		100
Input Current (Low Line) (A)			1.25
Input Current (High Line) (A)			0.5
Low Line Inrush Current (A)		12	15
High Line Inrush Current (A)		26	30
Efficiency (%)	75	83	88
Line Regulation (%)		0.5	1
Load Regulation (%)		3	7
Over Voltage Protection (%)	112		132
Over Current Protection (%)	110		150
Transient Response (ms)			4
Hold-up time (ms)	16		
Start-up Time	0.3	1.5	2
Ripple and Noise (peak-to-peak) (%)		0.5	1
Safety Ground Leakage Current (mA)			0.1
Temperature Coefficient (% / °C)	-0.04		0.04
Environmental			
Operating Temperature (°C)	0		70
Storage Temperature (°C)	-40		85
Relative Humidity (%)	5		95

A.6 Webcam Specifications

The specifications for the USB 2.0 VGA Webcam module on the front side of the AFL-317A are shown below.

	VGA Webcam (CN0314-MM00-MI01)
Optical Format	1/4-inch
Active Image Size	3.58 mm (H) x 2.70 mm (V) 4.48 mm diagonal
Active Pixels	640 (H) x 480 (V)
Pixel Size	5.6 um x 5.6 um
Optical Aperture	F/2.0
Color Filter Array	RGB Bayer pattern
Shutter Type	Electronic rolling shutter
Max. Data Rate / Master Clock	12~13.5 Mps / 24~27 MHz
Frame Rate	30 fps at full resolution (640 x 480)
ADC Resolution	10-bit, on-chip
Responsivity	1.9 V/lux-sec
Dynamic Range	60 dB
SNR_{MAX}	45 dB
Power Consumption	30 mA (preview mode)
Operating Temperature	-20°C~+80°C
PCB Layer	4 layers

A.7 Bluetooth Module Specifications

The specifications for the Bluetooth module on the AFL-317A are shown below.

Specification	Bluetooth Module
Standard	Bluetooth v2.0
Frequency Band	2.402GHz~2.480GHz unlicensed ISM band
Modulation Method	GFSK for 1Mbps n/4-DQPSK for 2Mbps 8-DPSK for 3Mbps
Spread Spectrum	FHSS (Frequency Hopping Spread Spectrum)
RF Output Power	Class 2 (under 4dBm)
Antenna Terminal	50 Ohms
DC Power	DC 3.3V or DC 5V
I/O Interface	USB 2.0 interface
Two GPIO Interface	LED link indicator interface
Dimensions	35mm x 11mm
Operating System	Windows XP, Windows 2000, Windows 98SE, Windows Me

Appendix

B

External Connector Pinouts

B.1 Introduction

Pin out signal definitions for the external connectors are provided in this appendix.

B.2 DVI Connector

The 24-pin Digital Visual Interface (DVI) connector connects to high-speed, high-resolution digital displays. The DVI-I connector supports both digital and analog signals.

PIN	Signal Name	Pin #	Signal Name	Pin #	Signal Name
1	TMDS Data2-	9	TMDS Data1-	17	TMDS Data0-
2	TMDS Data2+	10	TMDS Data1+	18	TMDS Data0+
3	GND	11	GND	19	GND
4	N/C	12	NC	20	NC
5	N/C	13	NC	21	NC
6	DDC Clock [SCL]	14	PVDD1	22	GND
7	DDC Data [SDA]	15	GND	23	TMDS Clock +
8	Analog vertical sync	16	GND	24	TMDS Clock -
C1	Analog Red	--	--	--	--
C2	Analog Green	--	--	--	--
C3	Analog Blue	--	--	--	--
C4	Analog Horizontal Sync	--	--	--	--
C5	Analog GND	--	--	--	--

DVI Connector Pinouts

B.3 Keyboard/Mouse Connector

The AFL-317A keyboard and mouse connector is a standard PS/2 connector.

PIN	DESCRIPTION
1	KB DATA
2	MS DATA
3	GND

PIN	DESCRIPTION
4	VCC
5	KB CLOCK
6	MS CLOCK

Keyboard Connector Pinouts

B.4 LAN Connectors

The AFL-317A is equipped with two built-in RJ-45 Ethernet controllers. The controllers can connect to the LAN through two RJ-45 LAN connectors. There are two LEDs on the connector indicating the status of LAN. The pin assignments are listed in the following table:

PIN	DESCRIPTION	PIN	DESCRIPTION
1	TXA+	5	TXC-
2	TXA-	6	TXB-
3	TXB+	7	TXD+
4	TXC+	8	TXD-

LAN Pinouts

B.5 RJ-12 Cash Drawer Connector

The AFL-317A has one RJ-12 cash draw connector.

PIN NO.	DESCRIPTION
1	Ground
2	Cash_1
3	Digital IN
4	+12 V/+24 V (jumper selection)
5	N/C
6	Ground

RJ-12 Cash Drawer Pinouts

B.6 Serial Port Connectors

The 9-pin DB-9 serial port connectors are connected to RS-232 serial communications devices.

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD	6	DSR
2	RX	7	RTS
3	TX	8	CTS
4	DTR	9	RI/5V/12V
5	GND		

RS-232 Serial Port Pinouts

B.7 USB Connector

The AFL-317A has eight external USB 2.0 ports. The ports connect to both USB 2.0 and USB 1.1 devices.

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	USBV3L 5V	2	GND
3	USBP4N	4	USBP5P
5	USBP4P	6	USBP5N
7	GND	8	USBV3L 5V

USB Port Pinouts

B.8 VGA Connector

The AFL-317A has a single 15-pin female connector for connectivity to standard display devices.

PIN	DESCRIPTION	PIN	DESCRIPTION
1	RED	2	GREEN
3	BLUE	4	NC
5	GND	6	GND
7	GND	8	GND

PIN	DESCRIPTION	PIN	DESCRIPTION
9	VCC / NC	10	GND
11	NC	12	DDC DAT
13	HSYNC	14	VSYNC
15	DDCCLK		

VGA Connector Pinouts

Appendix

C

Safety Precautions

WARNING:

The precautions outlined in this chapter should be strictly followed. Failure to follow these precautions may result in permanent damage to the AFOLUX AFL-317A series.

C.1 Safety Precautions

Please follow the safety precautions outlined in the sections that follow:

C.1.1 General Safety Precautions

Please ensure the following safety precautions are adhered to at all times.

- ***Follow the electrostatic precautions*** outlined below whenever the AFOLUX AFL-317A series is opened.
- ***Make sure the power is turned off and the power cord is disconnected*** whenever the AFOLUX AFL-317A series is being installed, moved or modified.
- ***Do not apply voltage levels that exceed the specified voltage range***. Doing so may cause fire and/or an electrical shock.
- ***Electric shocks can occur*** if the AFOLUX AFL-317A series chassis is opened when the AFOLUX AFL-317A series is running.
- ***Do not drop or insert any objects*** into the ventilation openings of the AFOLUX AFL-317A series.
- ***If considerable amounts of dust, water, or fluids enter the AFOLUX AFL-317A series***, turn off the power supply immediately, unplug the power cord, and contact the AFOLUX AFL-317Aseries vendor.
- **DO NOT**:
  - Drop the AFOLUX AFL-317A series against a hard surface.
  - Strike or exert excessive force onto the LCD panel.
  - Touch any of the LCD panels with a sharp object
  - In a site where the ambient temperature exceeds the rated temperature

C.1.2 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the installation of the AFOLUX AFL-317A series may result in permanent damage to the AFOLUX AFL-317A series and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the AFOLUX AFL-317A series. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the AFOLUX AFL-317A series is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.
- ***Self-grounding***: Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring or working with an electrical component, place it on an antic-static pad. This reduces the possibility of ESD damage.
- ***Only handle the edges of the electrical component***: When handling the electrical component, hold the electrical component by its edges.

C.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the AFOLUX AFL-317A series, please follow the guidelines below.

C.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the AFOLUX AFL-317A series, please read the details below.

- Except for the LCD panel, never spray or squirt liquids directly onto any other components. To clean the LCD panel, gently wipe it with a piece of soft dry cloth or a slightly moistened cloth.
- The interior of the AFOLUX AFL-317AX series does not require cleaning. Keep fluids away from the AFOLUX AFL-317A series interior.
- Be cautious of all small removable components when vacuuming the AFOLUX AFL-317A series.
- Turn the AFOLUX AFL-317A series off before cleaning the AFOLUX AFL-317A series.
- Never drop any objects or liquids through the openings of the AFOLUX AFL-317A series.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the AFOLUX AFL-317A series.
- Avoid eating, drinking and smoking within vicinity of the AFOLUX AFL-317A series.

C.2.2 Cleaning Tools

Some components in the AFOLUX AFL-317A series may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use when cleaning the AFOLUX AFL-317A series.

- ***Cloth*** – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the AFOLUX AFL-317A series.
- ***Water or rubbing alcohol*** – A cloth moistened with water or rubbing alcohol can be used to clean the AFOLUX LAFL-317A series.
- ***Using solvents*** – The use of solvents is not recommended when cleaning the AFOLUX LAFL-317A series as they may damage the plastic parts.
- ***Vacuum cleaner*** – Using a vacuum specifically designed for computers is one of the best methods of cleaning the AFOLUX AFL-317A series. Dust and dirt can restrict the airflow in the AFOLUX AFL-317A series and cause its circuitry to corrode.
- ***Cotton swabs*** - Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas.

- ***Foam swabs*** - Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.

Appendix

D

BIOS Configuration Options

D.1 BIOS Configuration Options

Below is a list of BIOS configuration options described in **Chapter 6**.

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Appendix

E

Watchdog Timer

NOTE:

The following discussion applies to DOS environment. IEI support is contacted or the IEI website visited for specific drivers for more sophisticated operating systems, e.g., Windows and Linux.

The Watchdog Timer is provided to ensure that standalone systems can always recover from catastrophic conditions that cause the CPU to crash. This condition may have occurred by external EMI or a software bug. When the CPU stops working correctly, Watchdog Timer either performs a hardware reset (cold boot) or a Non-Maskable Interrupt (NMI) to bring the system back to a known state.

A BIOS function call (INT 15H) is used to control the Watchdog Timer:

INT 15H:

AH – 6FH Sub-function:	
AL – 2:	Sets the Watchdog Timer's period.
BL:	Time-out value (Its unit-second is dependent on the item "Watchdog Timer unit select" in CMOS setup).

Table E-1: AH-6FH Sub-function

Call sub-function 2 to set the time-out period of Watchdog Timer first. If the time-out value is not zero, the Watchdog Timer starts counting down. While the timer value reaches zero, the system resets. To ensure that this reset condition does not occur, calling sub-function 2 must periodically refresh the Watchdog Timer. However, the Watchdog timer is disabled if the time-out value is set to zero.

A tolerance of at least 10% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time-consuming.

NOTE:

When exiting a program it is necessary to disable the Watchdog Timer, otherwise the system resets.

Example program:

```
; INITIAL TIMER PERIOD COUNTER
;
W_LOOP:

        MOV     AX, 6F02H       ;setting the time-out value
        MOV     BX, 05          ;time-out value is 5 seconds
        INT      15H
 ;
; ADD THE APPLICATION PROGRAM HERE
;
        CMP      EXIT_AP, 1      ;is the application over?
        JNE      W_LOOP      ;No, restart the application

        MOV     AX, 6F02H       ;disable Watchdog Timer
        MOV     BX, 0           ;
        INT      15H
;
; EXIT ;
```

Appendix

F

Hazardous Materials Disclosure

F.1 Hazardous Material Disclosure Table for IPB Products Certified as RoHS Compliant Under 2002/95/EC Without Mercury

The details provided in this appendix are to ensure that the product is compliant with the Peoples Republic of China (China) RoHS standards. The table below acknowledges the presences of small quantities of certain materials in the product, and is applicable to China RoHS only.

A label will be placed on each product to indicate the estimated “Environmentally Friendly Use Period” (EFUP). This is an estimate of the number of years that these substances would “not leak out or undergo abrupt change.” This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Please refer to the table on the next page.

Part Name	Toxic or Hazardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Housing	x	O	O	O	O	x
Display	X	O	O	O	O	X
Printed Circuit Board	X	O	O	O	O	X
Metal Fasteners	X	O	O	O	O	O
Cable Assembly	X	O	O	O	O	X
Fan Assembly	X	O	O	O	O	X
Power Supply Assemblies	X	O	O	O	O	X
Battery	O	O	O	O	O	O

O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in SJ/T11363-2006

X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in SJ/T11363-2006

此附件旨在确保本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有"环境友好使用期限"的标签，此期限是估算这些物质"不会有泄漏或突变"的年限。本产品可能包含有较短的环境友好使用期限的可替换元件，像是电池或灯管，这些元件将会单独标示出来。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
壳体	X	O	O	O	O	X
显示	X	O	O	O	O	X
印刷电路板	X	O	O	O	O	X
金属螺帽	X	O	O	O	O	O
电缆组装	X	O	O	O	O	X
风扇组装	X	O	O	O	O	X
电力供应组装	X	O	O	O	O	X
电池	O	O	O	O	O	O

O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。

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